



**ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ
АККУМУЛЯТОРЫ И БАТАРЕИ СВИНЦОВО-КИСЛОТНЫЕ
ГЕРМЕТИЗИРОВАННЫЕ МАРКИ CSB**

 GPSeries	<p>Аккумуляторы серии GP – это аккумуляторы общего назначения (General Purpose) рассчитаны не менее чем на 260 циклов при 100%-ном разряде или на 5 лет работы в буферном режиме. Технология AGM.</p>
 GPLSeries	<p>Серия GPL.Технология AGM. Это аккумуляторы общего назначения с увеличенным сроком службы - <i>10 лет</i> в буферном режиме.</p>
 HRSeries	<p>Серия HR, технология AGM. Аккумуляторы этой серии отличаются <i>высокой эффективностью и выходной мощностью</i> (на 20% выше по сравнению с другими аккумуляторами такого же объема) рассчитаны не менее, чем на 260 циклов при 100%-ном разряде или 5 лет работы в буферном режиме.</p>
 HRLSeries	<p>Серия HRL, технология AGM, увеличенный срок службы Это серия мощных аккумуляторов с расчетным сроком службы <i>10 лет</i> в буферном режиме.</p>
 TPLSeries	<p>Серия TPL, технология AGM, <i>фронтальное расположение борнов.</i> Срок службы 12 лет в буферном режиме. Оригинальный доступ к клеммам придает этим аккумуляторам гибкость в установке и уходе на 19- и 23-дюймовых стойках и в шкафах.</p>
 MSJSeries	<p>Серия MSJ. Технология AGM. <i>Аккумуляторы большой емкости (150-3000 Ач)</i> Длительный срок службы в буферном режиме - <i>до 20 лет.</i></p>
 MUSeries	<p>Серия MU. Технология AGM. Длительный срок службы в буферном режиме - <i>до 20 лет.</i> Большие емкости, модульные секции, <i>не требуют стеллажей.</i></p>



Технические характеристики аккумуляторов

Серия GP

Тип	GP645	GP672	GP6120	GP1222	GP1245	GP1272	GP12120	GP12170
Номинальное напряжение, В	6.00	6.00	6.00	12.00	12.00	12.00	12.00	12.00
Емкость	4.50	7.20	12.00	2.00	4.50	7.20	12.00	17.00
Вес, кг	0.84	1.22	1.85	0.90	1.66	2.40	3.67	5.55
Вн. сопротивление, мОм	19.00	15.50	8.50	63.00	40.50	23.00	16.00	16.00
Максимальный ток разряда, 5 сек А	60/90	100/130	150/180	40	60/90	100/130	150/180	230
Максимальная высота (H), мм	108±1.5	100±1.0	100	66±1.0	108±1.5	100±1.0	100±1.0	167± 2.0
Высота корпуса (h), мм	102±1.5	94±1.0	94±1.0	60±1.0	102±1.5	94.0±1.0	94±1.0	165.5± 2.0
Длина (L), мм	70± 1.0	151±2.0	151±2.0	178±0.5	92.8±1.0	151.0±2.0	151±2.0	181.0± 2.0
Ширина (W)	48 ±1.0	34±1.0	50±1.0	34±0.5	69.9±1.0	65.0±1.0	98.0±1.0	76.2± 1.0
Тип корпуса	a	c	c	c	c	e	e	d
Тип вывода	F1/F2	F1/F2	F1/F2	F1/F2	F1/F2-	F1/F2-	F1/F2-Faston	B1/B3
Материал контейнера	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)
Макс. заряд (А)	1.35	2.16	3.60	0.66	1.35	2.16	3.60	5.10

Тип	GP12200	GP12260	GP12340	GP12400	GP12650	GP121000
Номинальное напряжение, В	12.00	12.00	12.00	12.00	12.00	12.00
Емкость	20.00	26.00	34.00	40.00	65.00	100.00
Вес, кг	6.40	8.45	10.48	12.63	20.00	31.20
Вн.сопротивление, мОм	13.00	11.00	11.00	8.70	6.00	4.00
Максимальный ток разряда, 5 сек А	230	350	380	400	500	800
Максимальная высота (H), мм	167.0± 2.0	125.0±1.5	178.3±2.0	170.0±2.0	174.0±2.0	217.6±2.5
Высота корпуса (h), мм	160.0± 2.0	122.0±1.5	154.8±2.0	168.5±2.0	172.5±2.0	214.6±2.5
Длина (L), мм	181.0± 2.0	166.0±2.0	195.6±2.0	197.0±2.0	349.4±2.5	343.0±2.5
Ширина (W)	76.2± 1.0	175.0±2.0	130.0±1.5	165.0±2.0	166.0±2.0	170.0±2.0
Тип корпуса	d	d	c	d	d	f
Тип вывода	II под болт M5	B1/B3/B3B	B4	B2	B4	B4
Материал контейнера	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	Полипропилен (UL94V0)	Полипропилен (UL94 V0)
Максимальный заряд (А)	6.00	350.00	10.20	12.00	19.50	30.00





Серия GPL

Тип	GPL672	GPL1272	GPL12120	GPL12260	GPL12400	GPL12520	GPL12750	GPL12880	GPL121000
Номинальное напряжение, В	6.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Емкость	7.20	7.20	12.00	26.00	40.00	52.00	75.00	88.00	100.00
Вес, кг	1.37	2.60	4.10	9.18	14.50	18.00	25.60	29.70	33.50
Внутреннее сопротивление, мОм	13.50	21.00	14.00	9.40	7.00	5.50	4.50	4.50	3.50
Максимальный ток разряда, 5 сек А	100/130	100/130	180	350	400	500	800	800	800
Максимальная высота (H), мм	100±1.0	100±1.0	100±1.0	125±1.5	170±2.0	219.3 ± 2.0	214.2 ± 2.5	214 ± 2.5	217.6 ± 2.5
Высота корпуса (h), мм	94±1.0	94±1.0	94±1.0	122±1.5	168.5± 2.0	210.3 ± 2.0	211.2 ± 2.5	211.3 ± 2.5	214.6 ± 2.5
Длина (L), мм	151±2.0	151±2.0	151±2.0	166±2.0	197±2.0	228 ± 2.0	261 ± 2.5	308.7 ± 2.5	343 ± 2.5
Ширина (W)	34±1.0	65±1.0	98±1.0	175±2.0	165±2.0	138.4 ± 2.0	168.5 ± 2.0	169 ± 2.0	170 ± 2.0
Тип корпуса	c	e	e	d	d	c	c	c	c
Тип вывода	F1/F2	F1/F2	F1/F2	B1/B3/B3B	B2	B4	I2	I2	I2
Материал контейнера	ABS(94-HB & 94-V0)	ABS(94-HB & 94-V0)	ABS(94-HB & 94-V0)	ABS(94-HB & 94-V0)	ABS(94-HB & 94-V0)	PP(94-HB & 94-V0)	PP(94-HB & 94-V0)	PP(94-HB & 94-V0)	PP(94-HB & 94-V0)
Максимальный заряд (А)	2.16	2.16	3.60	7.80	12.00	15.60	22.50	26.40	30.00



GPL12120



GPL12260



GPL12400



GPL12520



GPL12750



GPL12880



GPL121000



Серия HR

Тип	HR1221W	HR1224W	HR1234W	HR1251W	HR12120W
Номинальное напряжение, В	12.00	12.00	12.00	12.00	12.00
Емкость	21.00 Вт/эл	24.00 Вт/эл	34.00 Вт/эл	51.00 Вт/эл	120.00 Вт/эл
Вес, кг	1.80	1.95	2.50	3.72	10.20
Вн. сопротивление, мОм	25.00	21.00	19.00	13.00	9.00
Макс.ток разряда, 5 сек А	60/90	100/130	130	150/180	400
Максимальная высота (H), мм	106± 0 0.5	98.3±1.0	100±1.0	100 ± 1.0	175 ± 2.0
Высота корпуса (h), мм	101.8± 0 0.5	94±1.0	94±1.0	94 ± 1.0	166.5 ± 2.0
Длина (L), мм	90±0.5	151±2.0	151±2.0	151 ± 2.0	166 ± 2.0
Ширина (W)	70±0.5	51± 1 1.2	65±1.0	98 ± 1.0	125 ± 1.5
Тип корпуса	с	е	е	е	с
Тип вывода	F1/F2	F1/F2	F2	F1/F2	II
Материал контейнера	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)	ABS(94-HB&94-V0)
Макс.заряд (А)	2.10	2.40	3.40	5.10	12.00



HR 1221



HR 1224



HR 1234



HR 1251



HR 12120



Серия HRL

Тип	HRL 634W	HRL 1210W	HRL 1223W	HRL 1234W	HRL 1280W	HRL 12110W
Номинальное напряжение, В	6.00	12.00	12.00	12.00	12.00	12.00
Емкость	34.00 Вт/эл	10.00 Вт/эл	23.00 Вт/эл	34.00 Вт/эл	80.00 Вт/эл	110.00 Вт/эл
Вес, кг	1.32	1.10	2.10	2.56	6.50	9.90
Внутреннее сопротивление, мОм	10.00	35.00	19.00	17.00	9.00	9.00
Макс. ток разряда, 5 сек А	130	40	130	130	300	400
Макс.высота (H), мм	98.3±1.0	70±1.0	106±1.5	98.3 ± 1.0	167 ± 2.0	175 ± 2.0
Высота корпуса (h), мм	94±1.0	64±1.0	101.8±1.5	94 ± 1.0	160 ± 2.0	165.5
Длина (L), мм	151±2.0	178±2.0	90±1.0	151 ± 2.0	181 ± 2.0	166 ± 2.0
Ширина (W)	34±1.0	34±1.0	70±1.0	65 ± 1.0	76.2 ± 2.0	125 ± 1.5
Тип корпуса	с	с	с	е	d	с
Тип вывода	F2	F2	F2	F2	I1	I1
Материал контейнера	ABS(94- HB&94-V0)	ABS(94- HB&94-V0)	ABS(94- HB&94-V0)	ABS(94- HB&94-V0)	ABS(94- HB&94-V0)	ABS(94- HB&94-V0)
Макс. заряд (А)	3.40	1.00	2.30	3.40	8.00	11.00

Тип	HRL 12150W	HRL 12200W	HRL 12280W	HRL 12330W	HRL 12390W	HRL 12500W
Номинальное напряжение, В	12.00	12.00	12.00	12.00	12.00	12.00
Емкость	150.00 Вт/эл	200.00 Вт/эл	280.00 Вт/эл	330.00 Вт/эл	390.00 Вт/эл	500.00 Вт/эл
Вес, кг	11.75	17.60	25.80	29.60	33.00	45.70
Вн. сопротивление, мОм	7.00	5.70	4.00	4.00	4.00	3.70
Максимальный ток разряда, 5 сек А	225	300	800	800	800	800
Макс.высота (H), мм	172 ± 2.0	207.3 ± 2.5	214 ± 2.5	214.3 ± 2.5	217.6 ± 2.5	277.7 ± 2.5
Высота корпуса (h), мм	148.5 ± 2.0	202.3 ± 2.5	211.2 ± 2.5	211.3 ± 2.5	214.6 ± 2.5	274.7 ± 2.5
Длина (L), мм	195.6 ± 2.0	228 ± 2.5	261 ± 2.5	308.7 ± 2.5	342 ± 2.5	343 ± 2.5
Ширина (W)	130 ± 1.5	138.4 ± 1.5	168.5 ± 2.0	169 ± 2.0	170 ± 2.0	170 ± 2.0
Тип корпуса	с	с	с	с	с	с
Тип вывода	I2	I2	I2	I2	I2	I2
Материал контейнера	ABS(94- HB&94-V0)	PP(94-HB&94- V0)	PP(94-HB&94- V0)	PP(94-HB&94- V0)	PP(94-HB&94- V0)	PP(94-V0)
Макс. заряд (А)	15.00	20.00	28.00	33.00	39.00	50.00



Серия TPL

Тип	TPL12800	TPL12900	TPL121000	TPL 121250	TPL 121350	TPL 121500	TPL 121600
Номинальное напряжение, В	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Емкость	80.00	90.00	100.00	125.00	135.00	150.00	160.00
Вес, кг	36.00	36.00	36.00	47.00	56.00	56.00	58
Внутреннее сопротивление, мОм	4.50	4.50	4.50	4.10	4.10	4.10	4.0
Максимальный ток разряда, 5 сек А	800	800	800	800	800	800	800
Максимальная высота (H), мм	254.5 ± 2.5	254.5 ± 2.5	254.5 ± 2.5	321.3 ± 2.5	321.3 ± 2.5	321.3 ± 2.5	321.3 ± 2.5
Длина (L), мм	511.1 ± 2.5	511.1 ± 2.5	511.1 ± 2.5	557 ± 2.5	557 ± 2.5	557 ± 2.5	557 ± 2.5
Ширина (W)	110 ± 1.5	110 ± 1.5	110 ± 1.5	124.8 ± 1.5	124.8 ± 1.5	124.8 ± 1.5	124.8 ± 1.5
Тип корпуса	е	е	е	е	е	е	е
Тип вывода	Фронтальные	Фронтальные	Фронтальные	Фронтальные	Фронтальные	Фронтальные	Фронтальные
Материал контейнера	PPE(94-V0)	PPE(94-V0)	PPE(94-V0)	PPE(94-V0)	PPE(94-V0)	PPE(94-V0)	PPE(94-V0)
Максимальный заряд (А)	24.00	27.00	30.00	37.50	40.50	45.00	48.00





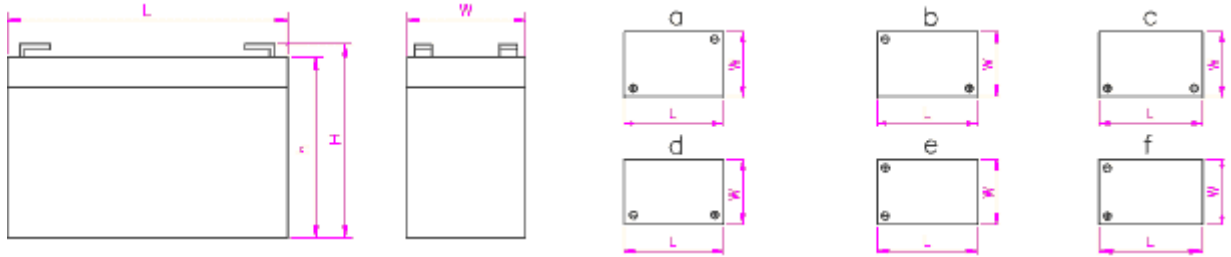
Серия MSJ

Тип	MSJ150	MSJ200	MSJ300	MSJ 350	MSJ 400	MSJ 500
Номинальное напряжение , В	2.00	2.00	2.00	2.00	2.00	2.00
Емкость	150.00	200.00	300.00	350.00	400.00	500.00
Вес, кг	13.56	15.30	22.20	22.30	28.00	36.50
Внутреннее сопротивление, мОм	0.74	0.62	0.44	0.38	0.41	0.42
Макс. ток разряда, 5 сек А	900	1200	1800	2100	2400	3000
Макс. высота (H), мм	365±3.0	365±3.0	365±3.0	365 ± 3.0	339 ± 3.0	365 ± 3.0
Высота корпуса (h), мм	331±3.0	331±3.0	331±3.0	331 ± 3.0	331 ± 3.0	331 ± 3.0
Длина (L), мм	106±3.0	106±3.0	150±3.0	150 ± 3.0	170 ± 3.0	171 ± 3.0
Ширина (W)	170±3.0	170±3.0	170±3.0	170 ± 3.0	197 ± 3.0	241 ± 3.0
Тип корпуса	A	A	A	A	F	B
Максимальный заряд (А)	45.00	60.00	90.00	105.00	120.00	150.00

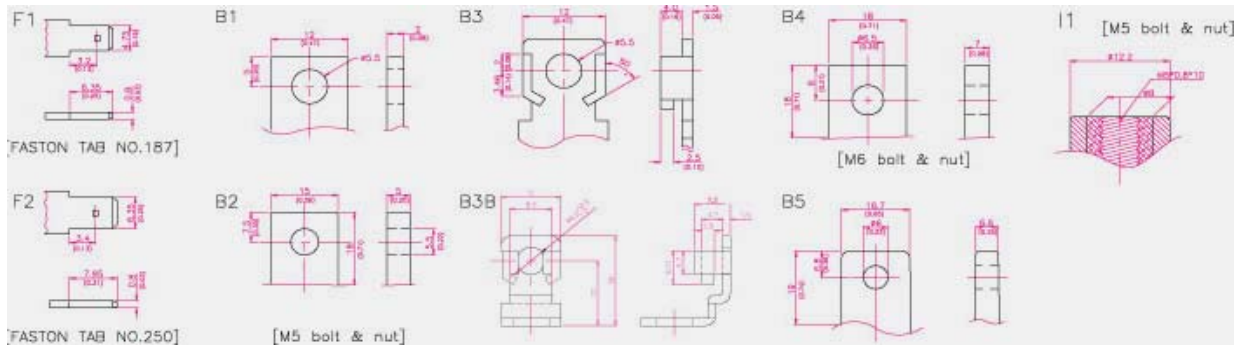
Тип	MSJ 650	MSJ 800	MSJ 1000	MSJ 1500	MSJ 2000	MSJ 3000
Номинальное напряжение , В	2.00	2.00	2.00	2.00	2.00	2.00
Емкость	650.00	800.00	1000.00	1500.00	2000.00	3000.00
Вес, кг	46.60	57.00	72.75	105.00	140.00	210.00
Внутреннее сопротивление, мОм	0.25	1.42	0.41	0.35	0.29	0.27
Макс. ток разряда, 5 сек А	3900	4800	6000	9000	12000	18000
Макс. высота (H), мм	365 ± 3.0	365 ± 3.0	365 ± 3.0	375 ± 3.0	375 ± 3.0	375 ± 3.0
Высота корпуса (h), мм	331 ± 3.0	331 ± 3.0	331 ± 3.0	340 ± 3.0	340 ± 3.0	340 ± 3.0
Длина (L), мм	171 ± 3.0	174 ± 3.0	171 ± 3.0	476 ± 3.0	476 ± 3.0	696 ± 3.0
Ширина (W)	307 ± 3.0	373 ± 3.0	471 ± 3.0	337 ± 3.0	337 ± 3.0	370 ± 3.0
Тип корпуса	B	B	C	D	D	E
Максимальный заряд (А)	195.00	240.00	300.00	450.00	600.00	900.00



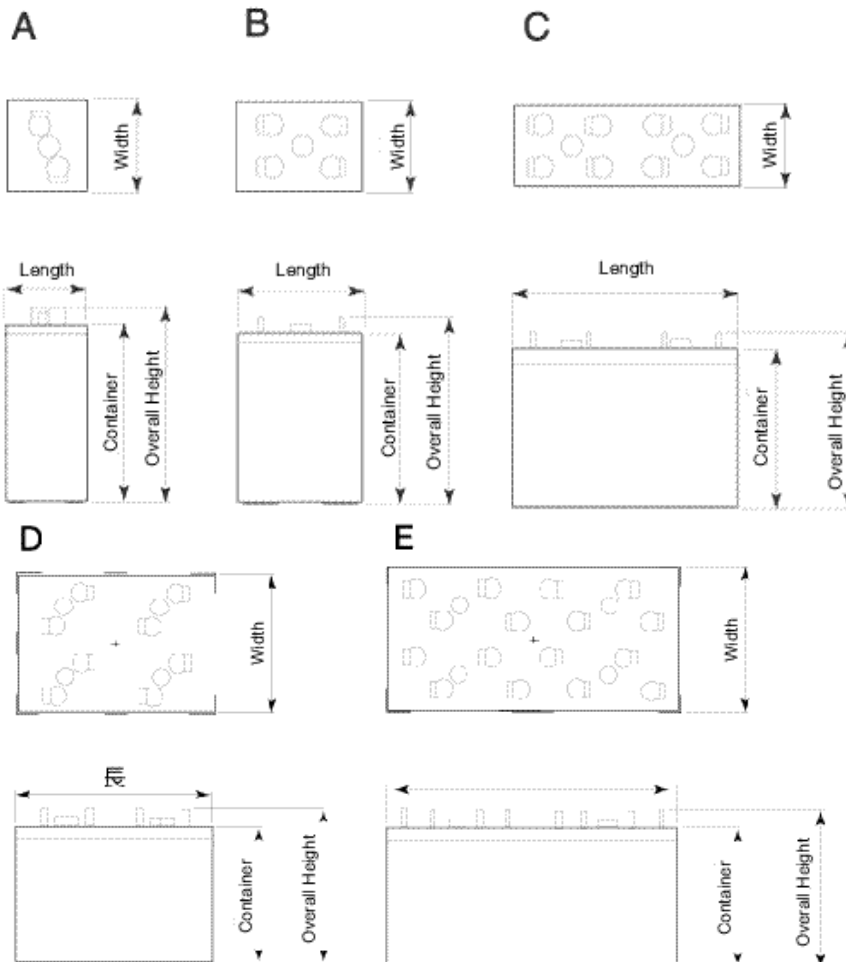
Типы корпусов (кроме MSJ)



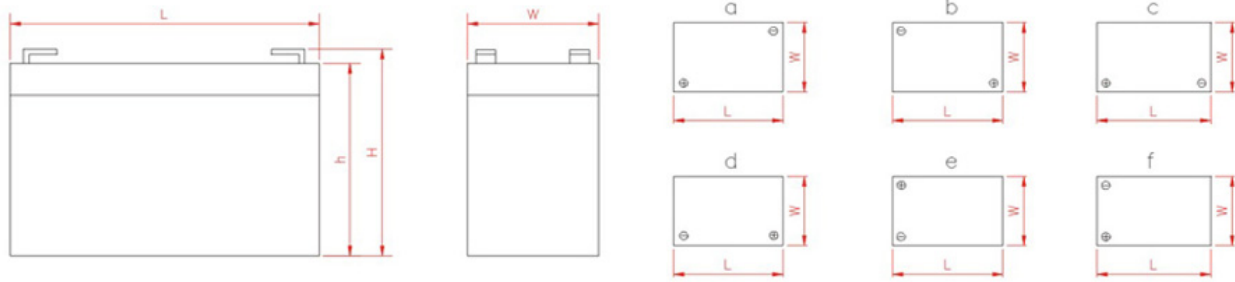
Типы клемм



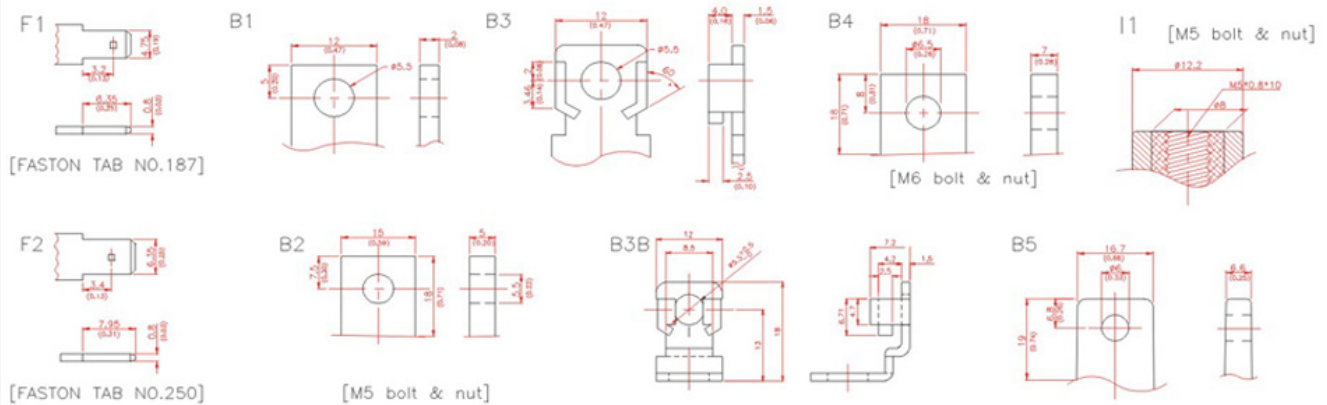
Типы корпусов серии MSJ



Terminal Position



Terminal Type



GP645

Constant Current Discharge Characteristics Unit:Amperes(25° C, 77° F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	18.7	12.3	9.08	5.37	3.11	1.80	1.26	0.994	0.810	0.535	0.439	0.234
1.67V	17.6	11.8	8.89	5.31	3.10	1.79	1.25	0.987	0.808	0.533	0.438	0.233
1.70V	17.0	11.6	8.79	5.28	3.08	1.78	1.24	0.984	0.807	0.532	0.437	0.232
1.75V	16.1	11.2	8.62	5.22	3.06	1.77	1.23	0.979	0.804	0.531	0.435	0.229
1.80V	15.0	10.7	8.42	5.13	3.03	1.76	1.22	0.975	0.801	0.529	0.431	0.225
1.85V	13.8	10.3	8.22	5.05	3.00	1.75	1.21	0.971	0.798	0.528	0.428	0.221

Constant Power Discharge Characteristics Unit:Watts(25° C, 77° F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	112	73.5	54.5	32.2	18.7	10.8	7.55	5.96	4.86	3.21	2.64	1.41
1.67V	105	70.4	53.4	31.8	18.6	10.7	7.52	5.94	4.85	3.20	2.63	1.40
1.70V	102	69.2	52.7	31.6	18.5	10.6	7.50	5.93	4.84	3.19	2.62	1.39
1.75V	96.0	66.8	51.8	31.3	18.4	10.5	7.48	5.91	4.83	3.18	2.61	1.38
1.80V	90.0	64.0	50.5	30.8	18.2	10.4	7.45	5.89	4.81	3.17	2.59	1.35
1.85V	82.5	61.3	49.3	30.3	18.0	10.3	7.43	5.87	4.80	3.16	2.57	1.33

GP672

Constant Current Discharge Characteristics Unit:Amperes(25° C, 77° F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	28.6	18.6	14.3	8.75	5.28	3.06	2.18	1.72	1.42	0.935	0.758	0.395
1.67V	26.7	17.8	13.9	8.67	5.26	3.05	2.17	1.71	1.41	0.931	0.749	0.383
1.70V	25.7	17.4	13.7	8.62	5.25	3.04	2.16	1.70	1.40	0.930	0.745	0.378
1.75V	24.2	16.7	13.3	8.53	5.24	3.03	2.15	1.69	1.39	0.927	0.737	0.368
1.80V	22.5	16.0	12.8	8.42	5.22	3.02	2.14	1.68	1.38	0.924	0.728	0.358
1.85V	20.8	15.2	12.3	8.30	5.20	3.01	2.13	1.67	1.37	0.921	0.719	0.348

Constant Power Discharge Characteristics Unit:Watts(25° C, 77° F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	172	112	85.5	52.5	31.7	18.4	13.1	10.3	8.52	5.62	4.55	2.37
1.67V	160	107	82.8	51.8	31.6	18.3	13.0	10.2	8.47	5.60	4.52	2.31
1.70V	154	104	81.5	51.4	31.5	18.2	12.9	10.1	8.45	5.59	4.50	2.29
1.75V	145	101	79.4	51.0	31.4	18.1	12.8	10.0	8.42	5.57	4.44	2.23
1.80V	135	96.0	77.0	50.4	31.3	18.0	12.7	9.91	8.38	5.56	4.38	2.16
1.85V	125	91.0	74.3	49.8	31.2	17.9	12.6	9.82	8.35	5.55	4.32	2.10

GP6120

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	48.2	31.4	24.1	14.8	8.83	5.12	3.66	2.89	2.33	1.53	1.23	0.640
1.67V	44.5	29.9	23.2	14.6	8.68	5.03	3.64	2.88	2.32	1.52	1.22	0.623
1.70V	42.9	29.2	22.9	14.5	8.61	4.98	3.63	2.87	2.31	1.51	1.21	0.616
1.75V	40.0	28.0	22.2	14.3	8.47	4.92	3.62	2.86	2.30	1.50	1.20	0.600
1.80V	37.0	26.7	21.4	14.1	8.33	4.83	3.60	2.84	2.28	1.49	1.18	0.584
1.85V	33.9	25.4	20.6	13.9	8.22	4.76	3.58	2.82	2.27	1.48	1.17	0.568

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	289	189	145	89.0	53.0	30.7	22.0	17.4	14.0	9.24	7.35	3.75
1.67V	268	180	140	88.0	52.2	30.4	21.9	17.3	13.9	9.19	7.28	3.65
1.70V	258	176	138	87.3	51.8	30.2	21.8	17.2	13.8	9.17	7.25	3.58
1.75V	241	169	133	86.0	51.0	29.6	21.7	17.1	13.7	9.11	7.15	3.54
1.80V	222	160	129	84.5	50.0	29.0	21.6	17.0	13.6	9.04	7.05	3.42
1.85V	204	152	124	83.0	49.0	28.4	21.5	16.9	13.5	8.98	6.95	3.31

GP1222

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	8.67	5.90	4.45	2.63	1.42	0.820	0.590	0.470	0.390	0.260	0.219	0.125
1.67V	7.94	5.50	4.17	2.49	1.36	0.787	0.569	0.449	0.371	0.249	0.209	0.118
1.70V	7.57	5.27	4.02	2.42	1.33	0.774	0.560	0.440	0.363	0.244	0.205	0.115
1.75V	6.75	4.76	3.68	2.25	1.30	0.751	0.540	0.425	0.351	0.238	0.199	0.110
1.80V	5.84	4.16	3.31	2.08	1.25	0.730	0.520	0.410	0.340	0.231	0.192	0.105
1.85V	4.79	3.48	2.82	1.90	1.21	0.710	0.504	0.395	0.330	0.225	0.185	0.100

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	104	70.8	54.5	32.3	17.0	9.79	7.11	5.62	4.64	3.06	2.59	1.41
1.67V	94.0	66.5	51.7	30.2	16.3	9.45	6.82	5.39	4.45	2.93	2.49	1.35
1.70V	89.7	63.6	49.9	29.2	16.0	9.28	6.69	5.29	4.37	2.88	2.44	1.32
1.75V	81.0	57.5	45.7	27.0	15.5	8.99	6.49	5.13	4.24	2.80	2.37	1.28
1.80V	70.1	49.9	39.7	24.9	15.0	8.70	6.28	4.96	4.10	2.71	2.29	1.24
1.85V	57.5	41.8	33.8	22.7	14.5	8.41	6.08	4.80	3.97	2.63	2.22	1.20

GP1245

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	21.1	13.1	9.57	5.47	3.24	1.88	1.35	1.07	0.902	0.606	0.501	0.272
1.67V	19.6	12.6	9.21	5.36	3.20	1.86	1.34	1.06	0.892	0.601	0.498	0.271
1.70V	18.8	12.4	9.05	5.29	3.19	1.85	1.33	1.05	0.882	0.599	0.497	0.267
1.75V	17.6	11.8	8.79	5.17	3.16	1.84	1.32	1.04	0.872	0.593	0.495	0.266
1.80V	16.4	11.3	8.52	5.05	3.12	1.82	1.31	1.03	0.862	0.589	0.491	0.263
1.85V	15.2	10.7	8.24	4.95	3.02	1.78	1.29	1.01	0.846	0.581	0.482	0.257

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	221	145	110	65.9	38.6	22.2	16.1	12.8	10.7	7.10	5.80	3.19
1.67V	206	139	107	65.4	38.4	22.0	16.0	12.7	10.6	7.08	5.78	3.18
1.70V	199	137	105	64.9	38.1	21.9	15.9	12.6	10.5	7.04	5.77	3.17
1.75V	188	133	102	64.7	38.0	21.8	15.8	12.5	10.4	7.03	5.74	3.16
1.80V	177	128	100	63.6	37.7	21.5	15.7	12.4	10.3	6.97	5.72	3.13
1.85V	165	122	96.6	60.9	36.7	21.3	15.5	12.3	10.2	6.89	5.64	3.09

GP1272

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	35.6	22.0	16.5	9.61	5.51	3.08	2.14	1.65	1.35	0.925	0.778	0.456
1.67V	33.1	21.0	15.9	9.36	5.42	3.03	2.09	1.60	1.32	0.906	0.762	0.447
1.70V	31.9	20.5	15.6	9.24	5.37	3.00	2.06	1.58	1.30	0.897	0.756	0.438
1.75V	29.6	19.6	15.1	9.03	5.30	2.96	2.02	1.54	1.28	0.883	0.742	0.428
1.80V	27.2	18.6	14.4	8.77	5.23	2.92	1.99	1.50	1.25	0.871	0.732	0.421
1.85V	24.5	17.4	13.7	8.45	5.14	2.87	1.96	1.48	1.23	0.861	0.720	0.409

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	360	245	183	108	64.4	37.7	26.6	20.8	17.3	11.8	9.80	5.37
1.67V	340	235	177	106	63.6	37.1	26.3	20.5	17.0	11.6	9.69	5.27
1.70V	331	231	174	105	63.1	36.9	26.2	20.4	16.9	11.5	9.54	5.23
1.75V	313	222	170	103	62.4	36.4	25.9	20.2	16.7	11.4	9.48	5.15
1.80V	295	213	165	101	61.7	35.9	25.6	19.9	16.5	11.3	9.40	5.07
1.85V	276	202	158	99.0	60.8	35.4	25.2	19.6	16.3	11.2	9.29	4.99

GP12120

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	48.2	31.4	24.1	14.8	8.83	5.12	3.66	2.89	2.33	1.53	1.23	0.645
1.67V	44.6	30.0	23.1	14.6	8.66	5.03	3.64	2.88	2.32	1.52	1.22	0.624
1.70V	42.9	29.2	22.7	14.5	8.57	5.00	3.63	2.87	2.31	1.51	1.21	0.615
1.75V	39.9	28.0	22.0	14.3	8.45	4.92	3.61	2.86	2.30	1.50	1.20	0.600
1.80V	36.9	26.7	21.3	14.0	8.30	4.82	3.60	2.84	2.28	1.49	1.18	0.585
1.85V	33.9	25.3	20.6	13.8	8.16	4.80	3.58	2.82	2.27	1.48	1.17	0.570

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	578	377	289	178	106	61.7	43.9	34.1	27.9	18.1	14.7	7.50
1.67V	533	358	279	175	104	61.6	43.8	34.0	27.8	18.0	14.6	7.30
1.70V	513	349	275	174	103	61.4	43.7	33.9	27.7	17.9	14.5	7.21
1.75V	479	335	266	172	102	61.2	43.5	33.8	27.5	17.8	14.3	7.02
1.80V	444	320	257	169	100	60.9	43.2	33.6	27.3	17.6	14.1	6.83
1.85V	407	304	247	166	98.0	60.6	43.0	33.4	27.1	17.4	13.9	6.64

GP12170

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	80.2	50.9	38.5	23.4	13.8	8.03	5.72	4.44	3.63	2.37	1.93	1.00
1.67V	71.2	47.5	36.5	22.9	13.7	8.00	5.69	4.43	3.62	2.36	1.90	0.958
1.70V	67.4	45.8	35.6	22.7	13.6	7.98	5.68	4.42	3.61	2.35	1.89	0.940
1.75V	61.0	43.1	34.1	22.3	13.4	7.93	5.65	4.41	3.60	2.33	1.86	0.910
1.80V	54.5	40.2	32.7	21.8	13.3	7.87	5.61	4.38	3.58	2.30	1.83	0.880
1.85V	48.0	37.3	31.0	21.2	13.1	7.81	5.57	4.36	3.57	2.28	1.80	0.850

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	890	583	449	281	166	96.4	68.6	53.3	43.6	28.4	23.1	12.0
1.67V	790	544	423	275	164	96.0	68.5	53.1	43.4	28.3	22.8	11.5
1.70V	748	527	413	272	163	95.8	68.4	53.0	43.3	28.2	22.7	11.3
1.75V	677	493	395	267	161	95.3	67.9	52.8	43.2	27.9	22.4	10.9
1.80V	605	460	377	261	160	94.6	67.3	52.6	43.0	27.6	22.0	10.5
1.85V	533	427	361	254	158	93.8	66.8	52.3	42.9	27.3	21.7	10.1

GP12200

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	87.5	55.5	42.3	25.5	15.1	8.75	6.23	4.92	3.97	2.62	2.10	1.09
1.67V	77.7	51.8	39.7	24.9	15.0	8.69	6.22	4.90	3.94	2.61	2.07	1.05
1.70V	73.5	50.2	38.7	24.7	14.9	8.67	6.20	4.89	3.93	2.60	2.06	1.03
1.75V	66.4	47.0	37.1	24.2	14.8	8.55	6.17	4.86	3.92	2.59	2.04	1.00
1.80V	59.3	43.8	35.2	23.8	14.5	8.42	6.12	4.83	3.91	2.58	2.00	0.960
1.85V	52.2	40.5	33.7	23.2	14.3	8.30	6.07	4.79	3.90	2.57	1.97	0.925

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	1,050	666	507	306	181	105	74.7	59.0	47.6	31.4	25.2	13.1
1.67V	932	621	481	301	179	104	74.6	58.9	47.3	31.3	24.9	12.5
1.70V	882	602	466	299	178	103	74.3	58.7	47.2	31.2	24.8	12.3
1.75V	797	564	446	292	176	102	74.0	58.5	47.1	31.1	24.4	11.9
1.80V	712	525	421	285	174	101	73.4	58.0	46.9	31.0	24.0	11.5
1.85V	627	487	404	278	171	99.5	72.8	57.6	46.8	30.9	23.6	11.1

GP12260

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	106	69.0	52.8	32.7	19.6	11.5	8.14	6.37	5.24	3.46	2.82	1.47
1.67V	99.0	65.9	51.1	32.3	19.5	11.4	8.13	6.36	5.23	3.43	2.79	1.43
1.70V	95.7	64.6	50.4	32.2	19.4	11.3	8.12	6.35	5.22	3.42	2.78	1.41
1.75V	89.7	62.0	49.0	31.6	19.3	11.2	8.11	6.34	5.21	3.39	2.74	1.37
1.80V	83.3	59.4	47.5	31.1	19.2	11.1	8.10	6.33	5.19	3.35	2.70	1.33
1.85V	76.7	56.5	45.8	30.5	19.1	11.0	8.09	6.32	5.17	3.32	2.66	1.29

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	1,270	828	634	392	235	138	97.7	76.4	62.9	41.5	33.8	17.6
1.67V	1,181	790	610	385	234	137	97.6	76.3	62.8	41.2	33.5	17.1
1.70V	1,139	772	602	382	233	136	97.5	76.2	62.7	41.0	33.3	16.9
1.75V	1,071	744	586	378	232	135	97.4	76.1	62.6	40.6	32.9	16.5
1.80V	999	713	570	373	231	134	97.3	76.0	62.3	40.2	32.4	16.0
1.85V	920	678	550	367	230	133	97.2	75.9	62.1	39.8	32.0	15.6

GP12340

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	144	91.7	69.3	42.1	25.0	14.5	10.3	8.00	6.55	4.26	3.48	1.86
1.67V	128	85.5	65.5	41.3	24.7	14.4	10.2	7.97	6.51	4.24	3.43	1.78
1.70V	121	82.8	63.8	40.8	24.5	14.3	10.1	7.95	6.49	4.23	3.41	1.75
1.75V	110	77.5	61.2	40.0	24.4	14.2	10.0	7.94	6.47	4.19	3.36	1.70
1.80V	98.0	72.3	58.8	39.2	24.0	14.1	9.91	7.89	6.45	4.14	3.30	1.64
1.85V	86.3	67.0	55.7	38.2	23.6	14.0	9.81	7.85	6.43	4.10	3.25	1.59

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	1,732	1,100	832	505	300	174	124	96.0	78.6	51.1	41.7	21.6
1.67V	1,539	1,026	788	495	297	173	123	95.8	78.1	50.8	41.1	20.7
1.70V	1,456	994	771	490	295	172	122	95.7	77.9	50.7	40.9	20.3
1.75V	1,316	931	739	481	292	171	121	95.2	77.7	50.2	40.3	19.6
1.80V	1,176	867	705	470	288	170	120	94.7	77.4	49.6	39.6	18.9
1.85V	1,036	804	669	458	283	169	119	94.2	77.2	49.1	39.0	18.2

GP12400

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	176	113	85.0	51.8	30.6	17.7	12.6	9.83	8.01	5.25	4.28	2.21
1.67V	157	105	81.0	50.8	30.3	17.6	12.5	9.77	7.98	5.19	4.20	2.12
1.70V	149	101	78.7	50.1	30.2	17.5	12.4	9.75	7.96	5.17	4.16	2.08
1.75V	135	95.0	75.5	49.0	30.0	17.4	12.3	9.71	7.93	5.10	4.09	2.01
1.80V	121	88.3	71.7	47.6	29.8	17.3	12.2	9.67	7.89	5.03	4.03	1.93
1.85V	107	81.7	67.8	46.2	29.4	17.2	12.1	9.63	7.85	4.96	3.96	1.86

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	2,110	1,350	1,020	622	367	212	151	118	96.1	63.0	51.3	26.5
1.67V	1,886	1,259	972	606	364	211	150	117	95.7	62.3	50.4	25.4
1.70V	1,790	1,214	945	600	363	210	149	116	95.5	62.0	50.0	24.9
1.75V	1,620	1,140	902	585	360	209	148	115	95.2	61.2	49.2	24.1
1.80V	1,450	1,060	860	571	357	208	147	114	94.8	60.4	48.3	23.2
1.85V	1,280	980	814	555	353	207	146	113	94.2	59.6	47.5	22.4

GP12650

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	271	173	132	79.9	47.2	27.3	19.4	15.1	12.4	8.08	6.58	3.57
1.67V	242	162	124	78.3	46.9	27.2	19.3	15.0	12.3	7.98	6.48	3.42
1.70V	229	157	121	77.3	46.7	27.1	19.2	14.9	12.2	7.93	6.43	3.36
1.75V	208	147	117	75.4	46.4	27.0	19.1	14.8	12.1	7.86	6.32	3.25
1.80V	186	137	111	73.4	45.9	26.9	19.0	14.7	12.0	7.76	6.21	3.14
1.85V	164	127	105	71.3	45.4	26.8	18.9	14.6	11.9	7.66	6.10	3.03

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	3,250	2,080	1,580	959	566	327	232	181	148	97.0	79.0	40.9
1.67V	2,900	1,940	1,503	935	562	326	231	180	147	96.0	77.7	39.2
1.70V	2,750	1,871	1,460	924	560	325	230	179	146	95.5	77.1	38.4
1.75V	2,490	1,760	1,400	903	555	324	229	178	145	94.3	75.8	37.1
1.80V	2,230	1,640	1,330	881	550	323	228	177	144	93.1	74.5	35.7
1.85V	1,970	1,520	1,260	856	545	322	227	176	143	91.9	73.2	34.4

GP121000

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	374	257	197	121	70.1	39.9	29.0	22.7	18.6	12.3	10.1	5.40
1.67V	346	242	187	117	68.8	39.2	28.6	22.3	18.3	12.1	9.94	5.30
1.70V	332	236	183	116	68.1	38.9	28.4	22.0	18.2	12.0	9.86	5.20
1.75V	305	222	175	113	66.8	38.4	27.9	21.7	17.9	11.8	9.72	5.10
1.80V	276	206	164	109	65.4	37.6	27.3	21.2	17.5	11.5	9.59	5.00
1.85V	242	185	152	103	63.5	36.6	26.5	20.7	17.1	11.3	9.40	4.80

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	4023	2838	2223	1366	802	459	335	263	216	143	117	61.1
1.67V	3690	2659	2094	1325	785	453	328	260	213	141	115	60.5
1.70V	3516	2578	2036	1306	778	449	325	258	211	140	114	60.0
1.75V	3242	2420	1931	1267	763	441	320	254	208	138	113	59.5
1.80V	2927	2228	1815	1218	746	432	313	248	203	135	111	58.9
1.85V	2601	2024	1698	1165	725	422	306	240	198	132	109	56.6

GPL12750

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	325	210	155	93.3	53.4	31.0	21.5	16.7	13.8	9.36	7.85	4.45
1.67V	292	194	146	90.1	52.3	30.5	21.2	16.6	13.7	9.30	7.69	4.42
1.70V	276	187	142	88.5	51.6	30.2	21.0	16.5	13.6	9.28	7.62	4.41
1.75V	249	174	135	85.4	50.4	29.8	20.6	16.2	13.5	9.11	7.56	4.33
1.80V	220	160	129	82.1	49.2	29.3	20.2	15.9	13.4	8.93	7.50	4.24
1.85V	188	145	121	78.5	47.7	28.8	19.8	15.6	13.0	8.76	7.44	4.16

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	3,420	2,370	1,778	1,070	623	363	253	197	163	112	94.7	53.2
1.67V	3,120	2,181	1,676	1,029	611	360	250	196	160	111	93.6	52.5
1.70V	2,986	2,100	1,626	1,008	604	358	248	195	159	110	93.1	52.1
1.75V	2,718	1,935	1,535	972	593	353	244	193	158	109	92.0	51.5
1.80V	2,450	1,770	1,442	936	580	347	240	189	156	107	90.8	50.8
1.85V	2,140	1,605	1,334	889	565	342	236	186	153	105	89.2	50.1

GPL12880

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	381	252	187	109	62.6	36.4	25.2	19.6	16.5	11.0	9.10	4.92
1.67V	342	230	176	105	61.0	35.8	24.8	19.5	16.4	10.9	9.00	4.87
1.70V	323	221	171	103	60.3	35.5	24.6	19.4	16.3	10.8	8.97	4.85
1.75V	291	205	160	99.1	59.0	35.0	24.2	19.1	15.9	10.6	8.92	4.82
1.80V	258	187	151	95.0	57.7	34.4	23.7	18.7	15.5	10.4	8.88	4.79
1.85V	220	169	140	90.8	56.0	33.9	23.3	18.4	15.1	10.2	8.83	4.76

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	4,010	2,679	2,020	1,250	731	426	297	231	192	131	111	62.5
1.67V	3,632	2,496	1,908	1,205	716	422	293	229	188	129	110	62.2
1.70V	3,451	2,409	1,850	1,184	708	418	290	227	187	128	109	62.0
1.75V	3,131	2,251	1,756	1,143	695	414	287	225	185	127	108	60.9
1.80V	2,817	2,080	1,651	1,097	680	407	282	221	184	126	107	59.8
1.85V	2,500	1,887	1,563	1,045	662	401	278	218	181	124	106	58.7

GPL121000

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	433	287	214	124	71.2	40.3	28.7	22.3	18.4	12.5	10.5	5.42
1.67V	388	263	198	120	69.7	39.7	28.2	22.0	18.2	12.4	10.4	5.38
1.70V	366	253	193	118	69.0	39.4	28.0	21.9	18.1	12.3	10.3	5.36
1.75V	330	234	183	113	67.6	38.8	27.5	21.6	17.9	12.1	10.2	5.31
1.80V	290	215	171	108	65.6	38.1	26.9	21.2	17.7	11.9	10.0	5.25
1.85V	250	196	161	103	63.6	37.5	26.4	20.9	17.3	11.7	9.80	5.20

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	4,560	3,150	2,371	1,420	830	472	337	263	218	149	126	71.0
1.67V	4,162	2,905	2,223	1,368	814	465	333	262	216	148	125	70.6
1.70V	3,972	2,783	2,150	1,342	806	461	331	261	214	147	124	70.4
1.75V	3,625	2,580	2,037	1,290	789	454	326	257	213	146	123	69.2
1.80V	3,251	2,360	1,897	1,238	773	445	320	252	212	143	121	67.9
1.85V	2,855	2,140	1,774	1,185	753	437	315	248	207	141	119	66.7



HR1224W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	47.5	33.0	26.1	22.0	18.9	14.0	11.0	7.95	4.29	3.43
1.67V	44.1	31.1	24.7	21.0	18.0	13.5	10.6	7.76	4.20	3.34
1.70V	42.7	30.3	24.0	20.5	17.6	13.2	10.5	7.67	4.15	3.30
1.75V	40.5	28.8	23.0	19.8	17.0	12.8	10.2	7.56	4.10	3.26
1.80V	38.4	27.4	22.2	19.1	16.4	12.5	10.0	7.49	4.06	3.22
1.85V	36.4	26.0	21.3	18.5	16.0	12.1	9.84	7.44	4.04	3.19

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	570	396	313	264	228	168	132	95.4	51.5	41.2
1.67V	529	373	297	251	217	162	128	92.9	50.3	40.2
1.70V	512	363	289	246	212	159	126	92.1	49.9	39.7
1.75V	486	346	277	238	204	154	123	90.8	49.3	39.2
1.80V	461	329	266	229	197	149	121	89.9	48.8	38.8
1.85V	437	314	256	219	187	144	119	89.2	48.5	38.6

HR1234W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	73.8	49.2	36.8	29.7	25.4	18.5	14.6	10.5	5.99	4.25
1.67V	65.8	44.8	34.4	28.2	24.2	17.8	14.1	10.3	5.86	4.15
1.70V	62.2	42.9	33.3	27.5	23.6	17.4	13.8	10.1	5.80	4.11
1.75V	56.3	39.8	31.6	26.2	22.7	16.8	13.5	9.90	5.69	4.05
1.80V	50.3	36.4	29.7	24.9	21.7	16.2	13.1	9.66	5.60	3.99
1.85V	43.3	32.9	27.6	23.5	20.7	15.6	12.7	9.39	5.50	3.92

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	706	506	395	328	286	211	169	124	71.7	50.8
1.67V	645	470	376	315	276	205	165	121	70.5	50.1
1.70V	618	454	366	308	270	202	163	120	70.0	49.6
1.75V	571	426	350	296	260	196	160	118	69.0	49.0
1.80V	524	400	333	285	250	191	156	116	68.1	48.3
1.85V	478	376	316	273	241	186	152	114	67.0	47.7

HR1251W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	85.8	64.0	50.8	43.0	36.8	27.1	21.4	15.4	8.33	6.65
1.67V	82.4	61.6	49.2	41.8	35.8	26.7	20.9	15.3	8.29	6.61
1.70V	80.5	60.5	48.0	41.2	35.2	26.4	20.7	15.2	8.28	6.58
1.75V	77.2	57.9	46.4	39.9	34.3	25.7	20.3	15.1	8.24	6.52
1.80V	72.9	54.8	44.6	38.3	32.9	24.8	19.9	14.9	8.20	6.44
1.85V	68.6	51.6	42.7	36.5	31.6	23.9	19.6	14.7	8.16	6.36

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	1,030	768	607	511	441	325	257	185	100	79.8
1.67V	990	742	585	500	430	320	251	184	99.6	79.4
1.70V	969	726	573	494	422	317	249	183	99.3	79.0
1.75V	927	695	552	479	408	310	244	181	98.9	78.3
1.80V	875	657	532	460	393	300	239	179	98.4	77.3
1.85V	824	619	513	441	379	290	235	177	97.9	76.4

HR1290W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	177	124	95.8	79.4	68.0	48.7	38.4	27.3	15.8	11.5
1.67V	156	114	90.2	77.6	65.2	48.4	38.1	27.0	15.7	11.4
1.70V	147	109	87.8	76.4	63.9	47.6	37.7	26.9	15.6	11.3
1.75V	131	102	82.9	72.8	61.1	46.2	37.0	26.3	15.5	11.2
1.80V	115	92.5	77.2	67.7	58.0	44.0	35.5	25.5	15.2	11.1
1.85V	98.6	82.9	70.8	60.8	53.3	40.7	32.6	23.8	14.5	10.6

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	1,701	1,282	1,041	868	753	544	429	309	183	133
1.67V	1,570	1,193	989	850	734	540	428	307	182	132
1.70V	1,509	1,155	962	838	726	534	426	305	181	131
1.75V	1,398	1,087	913	802	704	520	416	300	179	130
1.80V	1,282	1,011	862	756	665	501	402	295	177	129
1.85V	1,166	926	797	687	608	461	375	277	168	124

HRL1210W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	19.2	13.7	10.5	8.84	7.47	5.51	4.24	3.06	1.66	1.29
1.67V	18.3	13.3	10.2	8.70	7.37	5.43	4.20	3.03	1.64	1.28
1.70V	17.9	13.0	10.1	8.64	7.32	5.39	4.18	3.02	1.63	1.27
1.75V	17.1	12.5	9.85	8.37	7.15	5.27	4.10	2.98	1.62	1.26
1.80V	16.3	11.8	9.50	8.10	6.98	5.14	4.02	2.93	1.60	1.25
1.85V	15.6	11.1	9.15	7.83	6.81	5.02	3.94	2.89	1.59	1.24

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	200	147	113	95.6	81.5	60.9	47.0	34.1	18.7	14.7
1.67V	193	143	110	94.0	80.5	60.0	46.5	34.0	18.6	14.6
1.70V	189	140	108	92.9	79.8	59.3	46.3	33.9	18.5	14.5
1.75V	182	134	106	91.0	78.9	58.5	46.0	33.5	18.4	14.4
1.80V	175	128	103	89.1	77.3	57.2	45.2	33.0	18.2	14.3
1.85V	169	121	100	86.6	75.8	55.8	44.5	32.6	18.1	14.2

HRL1223W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	48.2	34.8	28.3	23.2	19.5	14.0	11.2	8.28	4.40	3.22
1.67V	44.9	32.7	27.0	22.1	18.7	13.6	11.0	8.05	4.26	3.10
1.70V	43.5	31.9	26.2	21.7	18.3	13.3	10.8	7.88	4.20	3.05
1.75V	41.3	30.4	25.2	20.9	17.6	12.9	10.7	7.87	4.18	2.95
1.80V	39.1	28.9	24.0	20.2	17.1	12.5	10.5	7.85	4.16	2.85
1.85V	36.9	27.4	22.9	19.4	16.4	12.1	10.3	7.84	4.14	2.75

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	540	390	317	260	218	161	132	99.1	51.9	38.0
1.67V	503	367	302	247	209	156	128	95.0	50.3	36.6
1.70V	489	357	294	242	205	152	126	93.0	49.6	36.0
1.75V	463	341	281	234	197	147	123	92.8	49.4	34.8
1.80V	438	324	271	227	192	143	121	92.4	49.1	33.6
1.85V	413	307	260	218	186	139	119	91.8	48.9	32.5

HRL1234W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	66.0	45.0	34.5	28.0	24.0	17.6	14.0	10.1	5.69	4.00
1.67V	58.0	41.0	32.3	27.1	23.5	17.4	13.8	9.90	5.61	3.96
1.70V	54.4	39.1	31.3	26.4	23.1	17.2	13.7	9.83	5.57	3.93
1.75V	48.5	35.9	29.4	25.0	22.1	16.8	13.4	9.68	5.50	3.87
1.80V	42.5	32.8	27.0	23.2	20.6	15.8	12.8	9.33	5.36	3.80
1.85V	36.6	29.6	24.6	21.1	18.8	14.4	11.7	8.71	5.06	3.62

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	643	465	375	306	265	205	159	115	65.9	46.7
1.67V	581	435	354	299	262	204	158	114	65.4	46.6
1.70V	550	419	342	293	259	202	155	111	64.6	46.4
1.75V	503	393	324	280	251	198	152	109	63.9	46.0
1.80V	456	367	307	266	238	189	147	108	62.9	45.1
1.85V	409	341	284	246	217	174	137	102	60.2	43.4

HRL1280W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	165	113	87.9	72.3	62.4	44.4	35.0	24.9	14.6	10.6
1.67V	142	103	81.7	69.5	58.7	43.5	34.0	24.6	14.4	10.4
1.70V	133	98.6	80.7	67.8	58.1	42.4	33.7	24.3	14.2	10.2
1.75V	119	92.3	75.5	64.3	54.3	41.6	32.9	23.7	14.0	10.1
1.80V	105	83.2	70.0	60.8	51.8	39.8	32.1	23.0	13.6	10.0
1.85V	92.3	76.6	65.2	56.8	49.2	37.6	30.1	22.1	13.5	9.84

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	1,584	1,171	955	790	691	496	391	282	169	122
1.67V	1,431	1,073	895	761	661	485	382	280	167	121
1.70V	1,369	1,045	884	743	660	475	381	275	165	118
1.75V	1,270	983	832	708	626	468	370	270	161	117
1.80V	1,173	909	781	679	593	453	364	266	159	116
1.85V	1,091	855	734	641	561	426	346	257	156	115

HRL12110W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	170	145	118	97.5	81.6	61.4	48.0	33.6	21.3	14.9
1.67V	151	129	108	91.1	77.5	59.6	47.0	33.2	20.8	14.7
1.70V	141	121	103	88.3	75.7	58.6	46.3	32.7	20.4	14.5
1.75V	125	108	93.2	82.7	72.2	56.1	44.7	32.3	20.0	14.4
1.80V	109	94.0	83.7	76.4	68.7	53.7	42.5	31.9	19.6	14.2
1.85V	89.3	78.7	73.6	69.2	64.4	51.0	40.8	29.7	18.3	14.0

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	1,806	1,541	1,270	1,053	888	682	554	385	247	174
1.67V	1,624	1,386	1,171	988	852	665	535	377	243	173
1.70V	1,530	1,316	1,107	956	827	655	526	372	239	171
1.75V	1,358	1,190	1,020	900	796	636	510	361	234	170
1.80V	1,177	1,054	941	851	764	610	495	352	229	168
1.85V	995	918	854	793	733	589	478	337	217	167

HRL12150W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	5MIN	7.5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	50MIN	60MIN	90MIN
1.60V	169	138	116	86.7	69.6	50.4	40.0	33.5	28.9	20.8
1.67V	152	127	107	82.2	66.3	48.4	38.7	32.5	28.6	20.5
1.70V	144	122	103	80.0	64.7	47.5	38.0	32.1	28.4	20.4
1.75V	132	112	96.8	76.0	62.0	45.7	36.8	30.9	27.8	20.0
1.80V	119	104	90.0	71.1	58.4	43.8	35.1	29.8	26.8	19.5
1.85V	107	94.1	82.8	67.0	55.1	41.7	33.6	28.6	25.0	18.6

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	7.5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	50MIN	60MIN	90MIN
1.60V	1,794	1,479	1,263	968	788	577	463	387	335	244
1.67V	1,624	1,370	1,182	935	753	559	451	386	334	239
1.70V	1,549	1,322	1,143	916	737	548	442	382	332	236
1.75V	1,422	1,234	1,075	877	704	530	428	374	325	231
1.80V	1,302	1,143	1,006	825	675	507	410	361	314	226
1.85V	1,188	1,057	943	773	639	486	396	337	296	222

HRL12200W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	5MIN	7.5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	50MIN	60MIN	90MIN
1.60V	225	184	155	116	92.7	67.2	53.4	44.6	38.5	27.7
1.67V	205	169	144	110	89.4	64.7	52.0	44.3	38.1	27.4
1.70V	195	163	138	108	87.6	63.6	51.1	43.9	37.8	27.3
1.75V	177	150	128	103	83.6	61.2	49.5	42.8	37.0	26.7
1.80V	159	138	119	95.7	79.0	58.7	47.4	41.0	35.7	26.0
1.85V	142	125	110	89.3	73.4	55.6	44.8	38.1	33.3	24.8

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	7.5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	50MIN	60MIN	90MIN
1.60V	2,392	1,972	1,684	1,290	1,050	770	618	516	447	325
1.67V	2,176	1,842	1,589	1,235	1,010	748	612	514	445	323
1.70V	2,081	1,774	1,540	1,208	988	737	607	510	443	322
1.75V	1,914	1,648	1,449	1,160	945	710	594	499	434	315
1.80V	1,747	1,526	1,359	1,093	900	683	568	481	419	308
1.85V	1,584	1,410	1,258	1,031	852	649	528	450	395	295

HRL12280W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	45MIN	50MIN	60MIN	90MIN
1.60V	318	216	167	137	103	82.6	76.0	70.1	59.9	44.6
1.67V	283	200	155	128	98.3	79.9	72.9	67.1	57.7	42.1
1.70V	266	192	149	124	96.3	78.1	71.2	65.4	55.6	40.6
1.75V	236	175	141	117	91.3	75.9	68.5	63.5	53.8	38.5
1.80V	207	161	131	111	85.4	70.5	63.7	58.8	50.1	36.3
1.85V	178	145	122	105	81.3	65.8	59.7	55.1	47.3	34.7

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	45MIN	50MIN	60MIN	90MIN
1.60V	3,354	2,304	1,788	1,476	1,110	888	822	762	648	485
1.67V	3,036	2,166	1,700	1,417	1,079	876	804	738	636	466
1.70V	2,880	2,100	1,643	1,384	1,060	864	792	726	618	454
1.75V	2,615	1,955	1,575	1,326	1,023	834	780	703	600	436
1.80V	2,329	1,800	1,493	1,274	980	802	738	678	581	422
1.85V	2,016	1,656	1,408	1,212	938	760	694	636	550	404

HRL12330W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	45MIN	50MIN	60MIN	90MIN
1.60V	383	260	201	165	123	98.4	89.9	82.0	70.2	52.1
1.67V	339	239	188	157	117	94.2	85.3	78.1	67.1	49.4
1.70V	318	229	181	152	113	91.1	83.4	76.4	64.9	47.3
1.75V	284	210	168	144	106	85.6	78.9	72.5	61.2	44.4
1.80V	253	193	158	135	98.4	79.6	72.5	66.4	56.6	41.6
1.85V	219	177	147	125	92.5	74.9	68.5	62.5	53.5	39.5

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	45MIN	50MIN	60MIN	90MIN
1.60V	4,044	2,772	2,148	1,770	1,320	1,062	972	888	762	566
1.67V	3,621	2,608	2,040	1,712	1,290	1,032	936	864	744	547
1.70V	3,438	2,520	1,979	1,679	1,266	1,008	924	852	726	529
1.75V	3,115	2,354	1,891	1,605	1,210	963	894	816	696	503
1.80V	2,791	2,180	1,795	1,528	1,145	918	833	762	650	484
1.85V	2,478	2,016	1,690	1,428	1,070	864	786	720	613	460

HRL12390W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	45MIN	50MIN	60MIN	90MIN
1.60V	443	308	236	191	142	112	102	93.5	78.8	58.0
1.67V	398	285	223	182	134	108	97.1	88.8	75.1	54.1
1.70V	376	274	215	177	130	105	94.6	86.4	72.2	51.4
1.75V	336	254	203	167	122	99.3	90.8	82.2	69.2	49.1
1.80V	295	232	187	154	114	92.2	83.8	76.4	64.7	45.6
1.85V	254	210	171	141	105	85.8	78.2	71.6	60.7	43.4

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	45MIN	50MIN	60MIN	90MIN
1.60V	4,674	3,276	2,526	2,052	1,524	1,206	1,098	1,014	858	630
1.67V	4,226	3,051	2,388	1,956	1,471	1,182	1,068	978	820	600
1.70V	4,000	2,945	2,330	1,910	1,440	1,164	1,050	960	804	574
1.75V	3,615	2,770	2,217	1,809	1,380	1,117	1,013	936	776	556
1.80V	3,226	2,600	2,090	1,708	1,296	1,062	964	882	746	530
1.85V	2,868	2,404	1,957	1,614	1,213	990	902	828	708	505

HRL12500W**Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)**

F.V/Time	5MIN	7.5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	50MIN	60MIN	90MIN
1.60V	491	444	388	294	235	172	136	112	95.7	67.2
1.67V	449	405	356	278	223	164	134	110	94.3	66.1
1.70V	425	386	340	270	217	161	133	109	93.5	65.4
1.75V	388	348	310	253	206	155	130	107	91.1	64.5
1.80V	348	309	278	233	194	147	123	102	87.3	62.0
1.85V	304	270	247	211	179	140	115	95.3	81.1	57.3

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	5MIN	7.5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	50MIN	60MIN	90MIN
1.60V	5,275	4,691	4,167	3,181	2,594	1,951	1,558	1,292	1,112	783
1.67V	4,880	4,300	3,790	3,018	2,490	1,871	1,520	1,276	1,091	769
1.70V	4,640	4,110	3,610	2,932	2,422	1,829	1,507	1,258	1,083	763
1.75V	4,250	3,750	3,290	2,748	2,309	1,740	1,466	1,237	1,066	754
1.80V	3,830	3,340	2,950	2,497	2,138	1,657	1,390	1,186	1,025	731
1.85V	3,366	2,882	2,600	2,203	1,964	1,564	1,321	1,130	977	695

All information are suggest to change without notification. Please consult CSB website (www.csb-battery.com) for latest information.

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BATTERY HRL 1223W F2PR CSB BATTERY CO. LTD. MADE IN TAIWAN

Specifications

Battery Type	Nominal Voltage (V)	Nominal Capacity (8Hr) (Ah)	Weight (Approx. Kg)	Energy Density (Wh/L)	Specific Energy (Wh/kg)	Internal Resistance Approx (mΩ)	Max. Discharge Current 5 sec (A)	Dimensions (mm)			Terminal Position	Terminal Type	Max. Charging Current (A)	Charging (V)	
								Overall Height (H)	Length (L)	Width (W)				Standby Use	Cycle Use
TPL12800	12	80	36.00	67.1	26.67	4.50	800	254.5±2.5	511.1±2.5	110.0±1.5	e	I2	24.00	2.275V ±0.025 / CELL AT 25°C (77°F) Temp Coefficient -3.3mV / CELL°C	2.45V ±0.05V / CELL AT 25°C (77°F) Temp Coefficient -5mV / CELL°C
TPL12900	12	90	36.00	75.5	30.00	4.50	800	254.5±2.5	511.1±2.5	110.0±1.5	e	I2	27.00		
TPL121000	12	100	36.00	83.9	33.33	4.50	800	254.5±2.5	511.1±2.5	110.0±1.5	e	I2	30.00		
TPL121250	12	125	47.00	67.2	31.91	4.10	800	321.3±2.5	557.0±2.5	124.8±1.5	e	I2	37.50		
TPL121500	12	150	56.00	80.6	32.14	4.10	800	321.3±2.5	557.0±2.5	124.8±1.5	e	I2	45.00		

TPL12800

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	148	94.3	55.3	40.4	32.1	23.7	19.1	15.8	13.5	11.8	10.4	8.50	4.45
1.70V	140	90.8	53.6	39.3	31.5	23.4	18.8	15.6	13.3	11.6	10.2	8.40	4.40
1.75V	126	84.0	51.1	37.8	30.3	22.8	18.3	15.0	12.8	11.2	10.0	8.20	4.30
1.80V	111	77.1	48.3	36.0	29.0	22.1	17.4	14.5	12.5	10.9	9.65	8.00	4.20
1.83V	103	72.8	46.3	34.7	28.2	21.3	16.9	14.1	12.2	10.6	9.35	7.70	4.10
1.85V	97.3	70.3	44.8	33.7	27.5	20.8	16.6	13.8	11.9	10.4	9.20	7.60	4.00
1.90V	84.1	62.9	41.2	31.4	25.7	18.9	15.0	12.5	10.7	9.40	8.40	6.95	3.70

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	1,575	1,018	606	445	357	265	214	178	152	133	118	96.2	50.5
1.70V	1,523	995	597	439	353	263	213	177	151	132	116	95.8	50.3
1.75V	1,405	946	582	431	345	261	210	173	149	129	115	94.8	49.8
1.80V	1,264	883	556	415	335	254	203	169	146	127	113	93.1	49.3
1.83V	1,174	839	539	403	327	249	199	166	143	124	111	91.7	48.5
1.85V	1,110	808	525	394	321	245	196	163	140	123	109	90.2	47.6
1.90V	967	731	485	372	305	226	180	150	128	113	101	83.5	44.5

TPL12900

Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	167	106	62.2	45.1	36.1	26.6	21.4	17.8	15.2	13.2	11.7	9.56	5.01
1.70V	159	102	60.4	44.4	35.7	26.3	21.2	17.5	15.0	13.1	11.5	9.45	4.95
1.75V	143	96.2	57.8	43.3	35.2	25.6	20.5	16.9	14.4	12.6	11.3	9.23	4.84
1.80V	127	88.4	54.7	41.7	34.2	24.8	19.6	16.2	14.0	12.2	10.9	9.00	4.73
1.83V	117	83.0	52.6	40.5	33.2	23.9	18.9	15.9	13.6	11.9	10.6	8.77	4.61
1.85V	110	79.5	50.6	39.0	32.5	23.3	18.4	15.5	13.3	11.6	10.4	8.55	4.50
1.90V	94.6	70.7	46.3	35.3	28.9	21.3	16.9	14.1	12.0	10.6	9.45	7.82	4.16

Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	1,772	1,145	681	497	401	298	241	201	172	149	132	108	56.8
1.70V	1,700	1,117	673	494	397	294	240	200	170	148	131	107	56.6
1.75V	1,556	1,057	649	482	389	285	235	194	166	146	130	106	56.1
1.80V	1,397	982	623	468	378	277	228	191	164	143	127	105	55.5
1.83V	1,300	932	603	456	369	272	222	187	161	140	124	102	54.6
1.85V	1,239	900	586	443	362	267	218	183	158	138	123	101	53.5
1.90V	1,087	822	545	418	343	254	202	169	144	127	113	94.0	50.1

TPL121000													
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	186	118	69.1	50.2	40.1	29.6	23.8	19.8	16.9	14.7	13.0	10.6	5.56
1.70V	175	114	67.4	49.4	39.4	29.3	23.5	19.5	16.6	14.5	12.8	10.5	5.50
1.75V	157	106	64.0	47.3	38.0	28.4	22.8	18.8	16.0	14.0	12.5	10.3	5.38
1.80V	139	98.0	60.3	44.7	36.3	27.0	21.8	18.1	15.6	13.6	12.1	10.0	5.25
1.83V	129	92.5	58.0	43.5	35.1	26.1	21.1	17.6	15.2	13.2	11.7	9.63	5.13
1.85V	122	88.2	56.0	42.5	34.3	25.4	20.7	17.2	14.8	12.9	11.5	9.50	5.00
1.90V	105	78.6	51.4	39.4	32.1	23.6	18.8	15.6	13.3	11.8	10.5	8.69	4.63
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	1,969	1,272	757	554	446	331	268	223	191	166	147	120	63.1
1.70V	1,878	1,233	746	549	439	329	267	222	189	165	145	120	62.9
1.75V	1,716	1,161	723	534	428	322	261	216	185	162	144	118	62.3
1.80V	1,549	1,075	691	511	414	313	254	212	183	159	141	116	61.6
1.83V	1,450	1,025	669	502	405	305	246	207	179	155	138	114	60.6
1.85V	1,382	994	655	496	399	299	241	203	175	153	136	113	59.5
1.90V	1,208	913	606	466	381	282	225	187	160	141	126	104	55.7

TPL121250													
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	232	147	86.3	63.0	50.2	37.0	29.8	24.7	21.1	18.4	16.3	13.3	6.95
1.70V	220	142	84.4	61.8	49.1	36.6	29.4	24.4	20.8	18.1	15.9	13.1	6.88
1.75V	199	132	81.2	59.3	47.2	35.2	28.5	23.4	20.0	17.5	15.6	12.8	6.72
1.80V	176	121	76.7	56.4	45.1	33.8	27.2	22.7	19.5	17.0	15.1	12.5	6.56
1.83V	162	115	73.1	54.5	43.8	32.7	26.4	22.0	19.0	16.5	14.6	12.0	6.41
1.85V	153	110	70.4	52.7	42.8	31.9	25.5	21.5	18.5	16.2	14.4	11.9	6.25
1.90V	131	98.2	64.3	49.1	40.1	29.5	23.4	19.5	16.6	14.7	13.1	10.9	5.78
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	2,461	1,590	946	695	557	414	335	279	238	208	184	150	78.9
1.70V	2,344	1,542	936	693	556	413	333	277	237	207	182	149	78.7
1.75V	2,138	1,456	910	681	555	407	328	270	231	202	180	148	77.9
1.80V	1,927	1,364	876	665	549	400	317	265	228	198	176	145	77.0
1.83V	1,797	1,304	844	649	538	389	310	259	224	194	172	142	75.8
1.85V	1,705	1,255	822	633	529	382	306	254	219	192	170	141	74.3
1.90V	1,510	1,142	757	581	477	353	281	234	200	176	158	131	69.6

TPL121500													
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	278	177	104	76.4	60.2	44.3	35.7	29.6	25.3	22.0	19.5	15.9	8.34
1.70V	263	170	100	74.3	59.5	43.9	35.3	29.3	24.9	21.8	19.1	15.8	8.25
1.75V	238	158	95.5	72.1	57.9	42.7	34.2	28.1	24.0	21.0	18.8	15.4	8.06
1.80V	211	146	90.2	68.1	55.6	41.3	32.6	27.2	23.4	20.3	18.1	15.0	7.88
1.83V	195	138	85.0	65.2	53.3	39.8	31.7	26.4	22.8	19.8	17.5	14.4	7.69
1.85V	184	133	82.9	63.7	52.1	38.9	31.0	25.8	22.2	19.4	17.3	14.3	7.50
1.90V	158	118	77.2	62.6	48.1	35.4	28.1	23.4	20.0	17.6	15.8	13.0	6.94
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	2,954	1,909	1,135	843	669	497	402	334	286	249	221	180	94.7
1.70V	2,821	1,855	1,122	833	667	496	400	333	284	248	218	179	94.4
1.75V	2,575	1,747	1,084	824	666	489	394	324	277	243	217	178	93.4
1.80V	2,322	1,627	1,033	785	646	480	380	318	274	238	212	175	92.5
1.83V	2,164	1,545	1,002	768	628	467	372	311	268	233	207	170	90.9
1.85V	2,057	1,495	977	753	618	459	367	305	263	230	204	169	89.2
1.90V	1,812	1,370	909	693	572	423	337	281	240	212	189	157	83.5

MSJ200										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	317	211	129	77.0	57.0	45.0	38.0	33.0	27.0	22.5
1.67V	302	202	123	74.0	55.0	44.0	37.0	32.0	26.0	21.6
1.70V	282	191	121	73.0	54.0	43.0	36.0	31.7	25.0	21.3
1.75V	250	169	112	69.0	51.0	41.2	35.0	30.0	24.5	20.6
1.80V	215	156	105	66.0	49.0	40.8	34.0	29.0	24.0	20.0
1.83V	182	141	97.0	62.0	47.0	38.0	32.0	28.0	23.0	19.4
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	556	375	231	139	104	84.0	71.0	62.0	50.0	42.0
1.67V	551	373	230	137	102	83.0	70.0	61.5	49.0	41.5
1.70V	507	347	223	135	101	82.0	69.0	61.0	48.0	41.0
1.75V	456	312	208	129	97.0	77.0	66.0	58.0	47.0	40.0
1.80V	392	288	196	123	93.0	76.0	65.0	57.0	46.0	39.0
1.83V	331	260	181	116	88.0	70.0	61.0	54.0	44.0	38.0

MSJ260										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	397	263	162	96.0	72.0	57.0	48.0	42.0	33.0	29.0
1.67V	378	253	154	93.0	68.0	55.0	46.0	40.0	33.0	28.0
1.70V	353	238	152	91.0	68.0	54.0	46.0	40.0	32.0	28.0
1.75V	313	212	140	86.0	63.0	52.0	43.0	38.0	31.0	27.0
1.80V	269	195	132	83.0	61.0	51.0	42.0	37.0	30.0	26.0
1.83V	228	176	122	78.0	58.0	47.0	40.0	35.0	28.0	25.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	695	468	288	173	130	104	88.0	78.0	63.0	53.0
1.67V	688	466	288	172	128	103	88.0	77.0	62.0	52.0
1.70V	633	433	278	168	126	103	87.0	76.0	61.0	52.0
1.75V	570	391	260	161	121	98.0	83.0	73.0	59.0	50.0
1.80V	490	360	245	154	116	96.0	81.0	71.0	58.0	49.0
1.83V	414	324	226	145	111	88.0	77.0	68.0	55.0	48.0

MSJ300										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	476	316	194	115	86.0	68.0	58.0	50.0	40.0	34.0
1.67V	453	303	185	111	82.0	66.0	55.5	48.3	39.0	32.4
1.70V	423	286	182	109	81.0	65.0	54.6	47.6	38.0	32.0
1.75V	375	254	168	103	76.0	61.9	52.0	45.0	37.0	31.0
1.80V	323	234	158	99.0	73.0	61.2	50.0	44.0	36.0	30.0
1.83V	273	211	146	93.0	70.0	56.0	48.0	42.0	34.0	29.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	834	562	346	208	156	125	106	93.0	75.0	63.0
1.67V	826	559	345	206	154	124	105	92.0	74.0	62.5
1.70V	760	520	334	202	151	123	104	91.0	73.0	62.0
1.75V	684	469	312	193	145	118	100	87.0	71.0	60.0
1.80V	588	432	294	185	139	115	97.0	85.0	69.0	59.0
1.83V	497	389	271	174	133	105	92.0	81.0	66.0	57.0

MSJ350										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	555	369	226	134	100	79.0	68.0	58.0	47.0	40.0
1.67V	529	354	216	130	96.0	77.0	65.0	56.0	46.0	38.0
1.70V	494	334	212	127	95.0	76.0	64.0	56.0	44.0	37.0
1.75V	438	296	196	120	89.0	72.0	61.0	53.0	43.0	36.0
1.80V	377	273	184	116	85.0	71.0	58.0	51.0	42.0	35.0
1.83V	319	246	170	109	82.0	65.0	56.0	49.0	40.0	34.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	973	656	404	243	182	146	124	109	88.0	74.0
1.67V	964	652	403	240	180	145	123	107	86.0	73.0
1.70V	887	607	390	236	176	144	121	106	85.0	72.0
1.75V	798	547	364	225	169	138	117	102	83.0	70.0
1.80V	686	504	343	216	162	134	113	99.0	81.0	69.0
1.83V	580	454	316	203	155	123	107	95.0	77.0	67.0

MSJ400										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	635	421	259	153	115	91.0	77.0	67.0	53.0	45.0
1.67V	604	404	247	148	109	88.0	74.0	64.0	52.0	43.0
1.70V	564	381	243	145	108	87.0	73.0	63.0	51.0	43.0
1.75V	500	339	224	137	101	83.0	69.0	60.0	49.0	41.0
1.80V	431	312	211	132	97.0	82.0	67.0	59.0	48.0	40.0
1.83V	364	281	195	124	93.0	75.0	64.0	56.0	45.0	39.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1112	749	461	277	208	167	141	124	100	84.0
1.67V	1101	745	460	275	205	165	140	123	99.0	83.0
1.70V	1013	693	445	269	201	164	139	121	97.0	83.0
1.75V	912	625	416	257	193	157	133	116	95.0	80.0
1.80V	784	576	392	247	185	153	129	113	92.0	79.0
1.83V	663	519	361	232	177	140	123	108	88.0	76.0

MSJ500										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	794	527	323	192	143	114	96.0	83.0	67.0	56.0
1.67V	755	506	309	185	137	110	92.0	81.0	64.0	54.0
1.70V	704	477	303	182	134	109	91.0	79.0	63.0	53.0
1.75V	625	424	279	172	127	103	87.0	75.0	61.0	52.0
1.80V	538	391	263	164	122	102	84.0	74.0	60.0	50.0
1.83V	455	352	243	155	116	94.0	80.0	70.0	57.0	48.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1390	937	577	347	260	209	177	157	125	106
1.67V	1377	932	575	342	259	207	175	155	124	105
1.70V	1267	867	557	337	251	204	173	152	122	104
1.75V	1139	781	520	322	242	197	166	145	119	101
1.80V	980	720	490	308	232	191	161	142	115	98.0
1.83V	829	649	452	290	221	176	154	134	110	95.0

MSJ650										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1032	685	420	250	186	148	125	108	87.0	73.0
1.67V	982	658	402	241	178	143	120	105	83.0	70.0
1.70V	915	620	394	237	174	142	118	103	82.0	69.0
1.75V	813	551	363	224	165	134	113	98.0	79.0	68.0
1.80V	699	508	342	213	159	133	109	96.0	78.0	65.0
1.83V	592	458	316	202	151	122	104	91.0	74.0	62.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1807	1218	750	451	338	272	230	204	163	138
1.67V	1790	1212	748	445	337	269	228	202	161	137
1.70V	1647	1127	724	438	326	265	225	198	159	135
1.75V	1481	1015	676	419	315	256	216	189	155	131
1.80V	1274	936	637	400	302	248	209	185	150	127
1.83V	1078	844	588	377	287	229	200	174	143	124

MSJ800										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1270	843	517	307	229	182	154	133	107	90.0
1.67V	1208	810	494	296	219	176	147	130	102	86.0
1.70V	1126	763	485	291	214	174	146	126	101	85.0
1.75V	1000	678	446	275	203	165	139	120	98.0	83.0
1.80V	861	626	421	262	195	163	134	118	96.0	80.0
1.83V	728	563	389	248	186	150	128	112	91.0	77.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	2224	1499	923	555	416	334	283	251	200	170
1.67V	2203	1491	920	547	414	331	280	248	198	168
1.70V	2027	1387	891	539	402	326	277	243	195	166
1.75V	1822	1250	832	515	387	315	266	232	190	162
1.80V	1568	1152	784	493	371	306	258	227	184	157
1.83V	1326	1038	723	464	354	282	246	214	176	152

MSJ1000										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1588	1054	646	384	286	228	192	166	134	112
1.67V	1510	1012	618	370	274	220	184	162	128	108
1.70V	1408	954	606	364	268	218	182	158	126	106
1.75V	1250	848	558	344	254	206	174	150	122	104
1.80V	1076	782	526	328	244	204	168	148	120	100
1.83V	910	704	486	310	232	188	160	140	114	96.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	2780	1874	1154	694	520	418	354	314	250	212
1.67V	2754	1864	1150	684	518	414	350	310	248	210
1.70V	2534	1734	1114	674	502	408	346	304	244	208
1.75V	2278	1562	1040	644	484	394	332	290	238	202
1.80V	1960	1440	980	616	464	382	322	284	230	196
1.83V	1658	1298	904	580	442	352	308	268	220	190