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MBRD835LT4G, SBRD8835LT4G SWITCHMODE Power Rectifier

DPAK Surface Mount Package

This SWITCHMODE power rectifier which uses the Schottky Barrier principle with a proprietary barrier metal, is designed for use as output rectifiers, free wheeling, protection and steering diodes in switching power supplies, inverters and other inductive switching circuits.

Features

- Low Forward Voltage
- 150°C Operating Junction Temperature
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Compact Size
- Lead Formed for Surface Mount
- SBRD8 Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These Devices are Pb−Free and are RoHS Compliant*

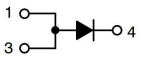
Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 0.4 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 75 Units Per Plastic Tube
- ESD Rating:
  - Machine Model = C (> 400 V)
  - Human Body Model = 3B (> 8000 V)

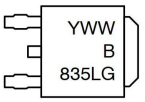
SCHOTTKY BARRIER RECTIFIER 8.0 AMPERES, 35 VOLTS



DPAK
CASE 369C



MARKING DIAGRAM



B835LG = Specific Device Number
Y = Year
WW = Work Week
G = Pb−Free Device

ORDERING INFORMATION

Device	Package	Shipping†
MBRD835LT4G	DPAK (Pb−Free)	2,500 / Tape & Reel **
SBRD8835LT4G	DPAK (Pb−Free)	2,500 / Tape & Reel **

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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	35	V
Average Rectified Forward Current (At Rated V_R, T_C = 88°C)	$I_{F(AV)}$	8.0	A
Peak Repetitive Forward Current (At Rated V_R, Square Wave, 20 kHz, T_C = 80°C)	I_{FRM}	16	A
Non−Repetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	I_{FSM}	75	A
Repetitive Avalanche Current (Current Decaying Linearly to Zero in 1 μs, Frequency Limited by T_{Jmax})	I_{AR}	2.0	A
Storage / Operating Case Temperature	T_{stg}	−65 to +150	°C
Operating Junction Temperature (Note 1)	T_J	−65 to +150	°C
Voltage Rate of Change (Rated V_R)	dv/dt	10,000	V/μs

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. The heat generated must be less than the thermal conductivity from Junction−to−Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance − Junction−to−Case	$R_{\theta JC}$	2.8	°C/W
Thermal Resistance − Junction−to−Ambient (Note 2)	$R_{\theta JA}$	80	°C/W

2. Rating applies when surface mounted on the minimum pad size recommended.

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 3) (i_F = 8 Amps, T_C = +25°C) (i_F = 8 Amps, T_C = +125°C)	V_F	 0.51 0.41	V
Maximum Instantaneous Reverse Current (Note 3) (Rated dc Voltage, T_C = +25°C) (Rated dc Voltage, T_C = +100°C)	I_R	 1.4 35	mA

3. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2%.

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TYPICAL CHARACTERISTICS

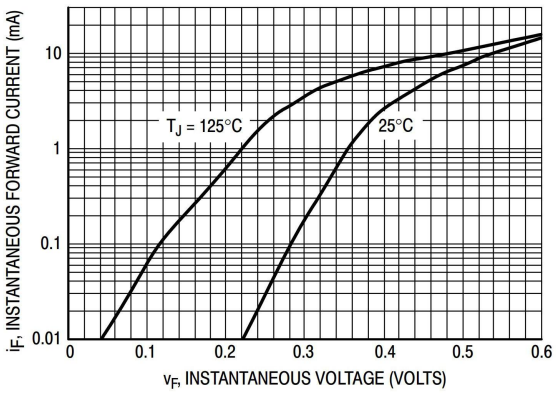

Figure 1. Maximum Forward Voltage

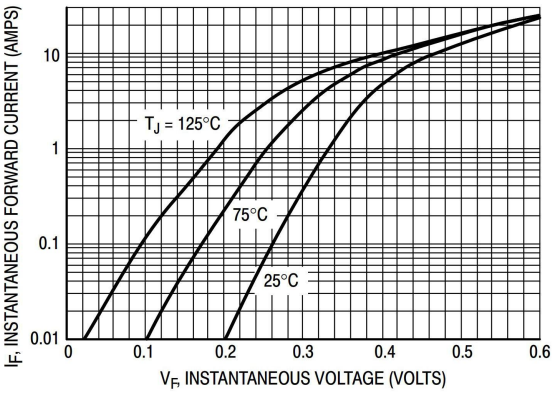

Figure 2. Typical Forward Voltage

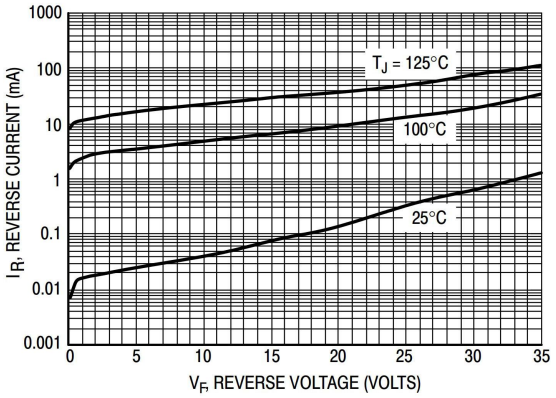

Figure 3. Maximum Reverse Current

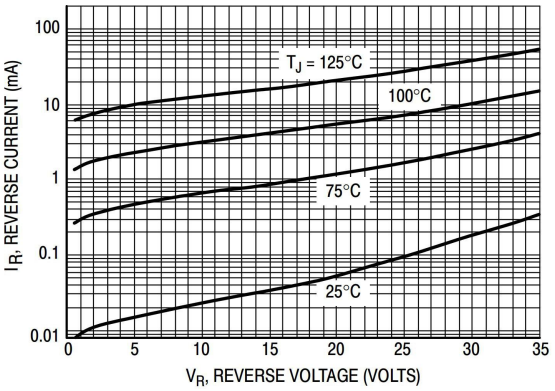

Figure 4. Typical Reverse Current

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TYPICAL CHARACTERISTICS

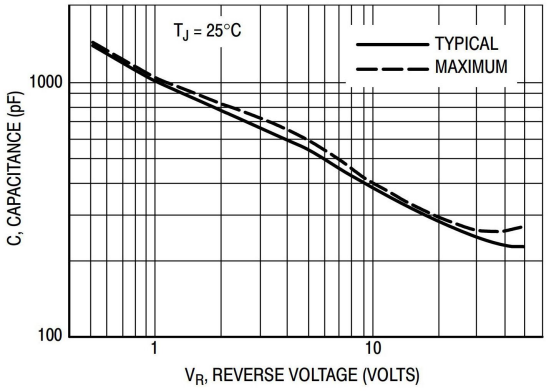

Figure 5. Maximum and Typical Capacitance

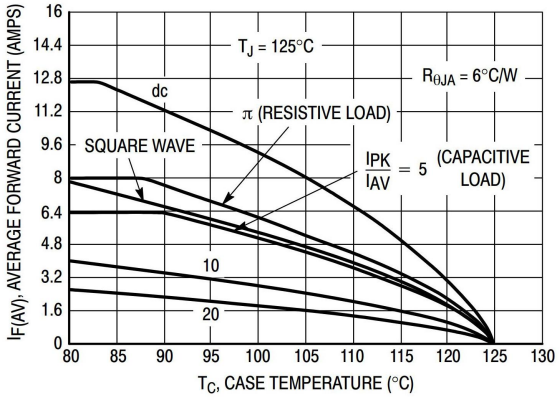

Figure 6. Current Derating, Infinite Heatsink

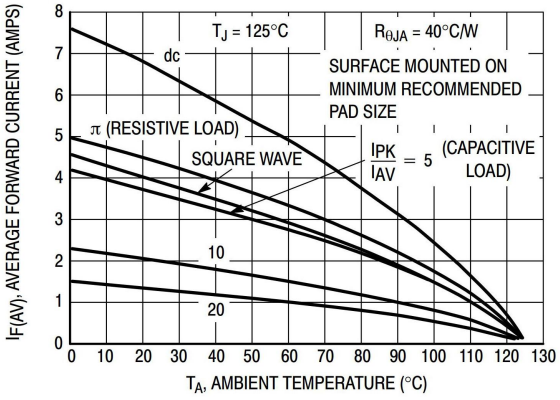

Figure 7. Current Derating

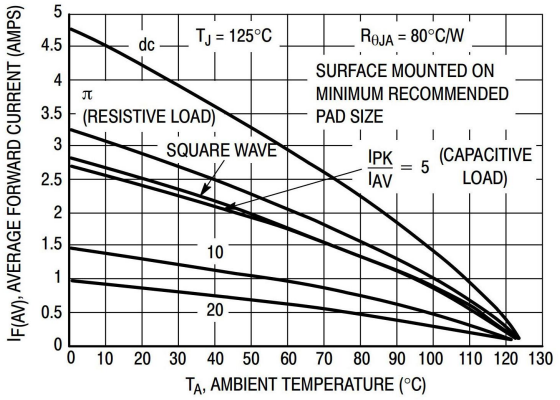

Figure 8. Current Derating, Free Air

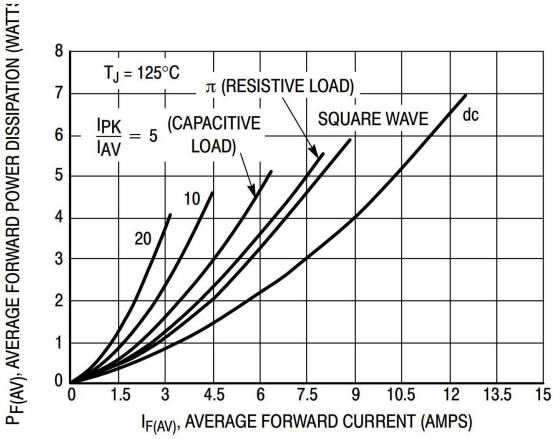

Figure 9. Forward Power Dissipation

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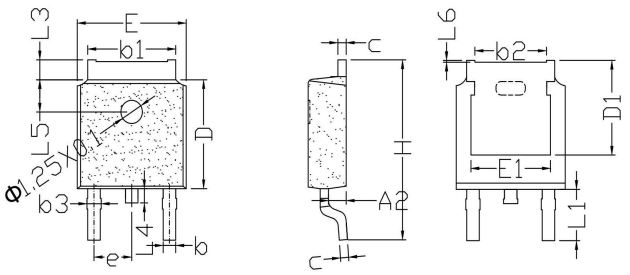
Ordering Information

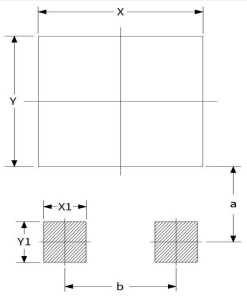
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
TO-252	R3	0.305	2500	5000	25000	13''

Package Outline Dimensions (TO-252)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A2	0.90	1.10	0.035	0.043
b	0.66	0.86	0.026	0.034
b1	5.10	5.46	0.201	0.215
b2	4.27	4.37	0.168	0.172
b3	0.78	0.90	0.031	0.035
c	0.45	0.55	0.018	0.022
D	5.90	6.30	0.232	0.248
D1	5.35 REF.		0.211REF.	
E	6.30	6.70	0.248	0.264
E1	4.83 REF.		0.190 REF.	
e	2.18	2.38	0.086	0.094
H	9.80	10.4	0.386	0.409
L1	2.70	3.10	0.106	0.122
L3	0.80	1.20	0.031	0.047
L4	0.60	1.00	0.024	0.039
L5	1.8 REF.		0.071 REF.	
L6	-	0.12	-	0.005

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
a	3.70	-	0.146	-
b	4.37	-	0.172	-
X	-	5.80	-	0.228
X1	-	1.20	-	0.047
Y	-	5.85	-	0.230
Y1	-	2.00	-	0.079