Designer's™ Data Sheet

Schottky Power Rectifier

Surface Mount Power Package

MBRS130LT3

Motorola Preferred Device

SCHOTTKY BARRIER RECTIFIER 1.0 AMPERE 30 VOLTS

. . . Employs the Schottky Barrier principle in a large area metal–to–silicon power diode. State–of–the–art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency rectification, or as free wheeling and polarity protection diodes, in surface mount applications where compact size and weight are critical to the system.

- Very Low Forward Voltage Drop (0.395 Volts Max @ 1.0 A, T_J = 25°C)
- Small Compact Surface Mountable Package with J–Bend Leads
- Highly Stable Oxide Passivated Junction
- Guardring for Stress Protection

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 95 mg (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 in 12 mm Tape and Reel, 2500 units per reel
- Polarity: Notch in Plastic Body Indicates Cathode Lead
- Marking: B130

CASE 403A–03

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	30	Volts
Average Rectified Forward Current (T_L = 120°C) (T_L = 110°C)	$I_{F(AV)}$	1.0 2.0	Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	40	Amps
Operating Junction Temperature	T_J	– 65 to +125	°C

THERMAL CHARACTERISTICS

Thermal Resistance — Junction to Lead (T_L = 25°C)	$R_{\theta JL}$	12	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (1) (i_F = 1.0 A, T_J = 25°C) (i_F = 2.0 A, T_J = 25°C)	V_F	 0.395 0.445	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, T_J = 25°C) (Rated dc Voltage, T_J = 100°C)	I_R	 1.0 10	mA

(1) Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2%.

Designer's Data for "Worst Case" Conditions — The Designer's Data Sheet permits the design of most circuits entirely from the information presented. SOA Limit curves — representing boundaries on device characteristics — are given to facilitate "worst case" design.

Preferred devices are Motorola recommended choices for future use and best overall value.

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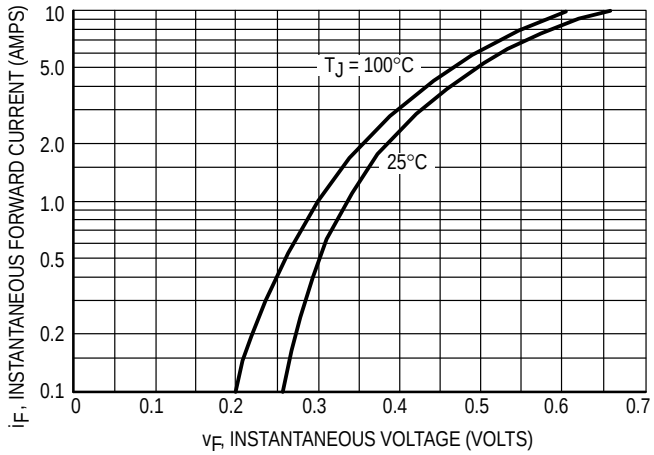


Figure 1. Typical Forward Voltage

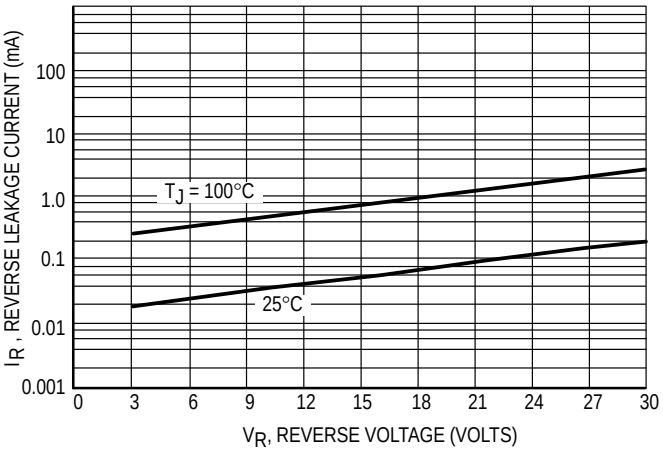


Figure 2. Typical Reverse Leakage Current

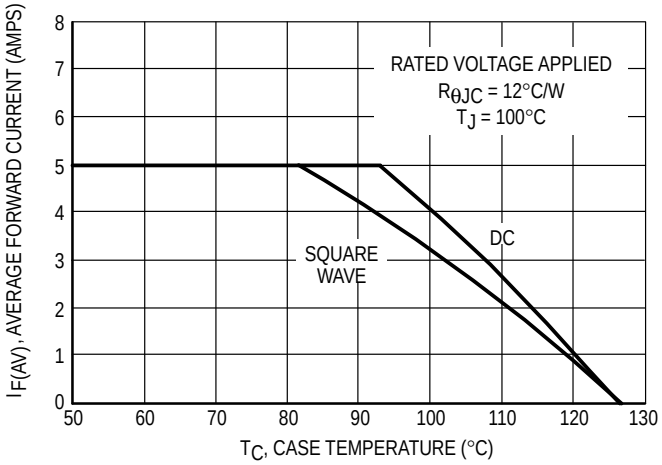


Figure 3. Current Derating (Case)

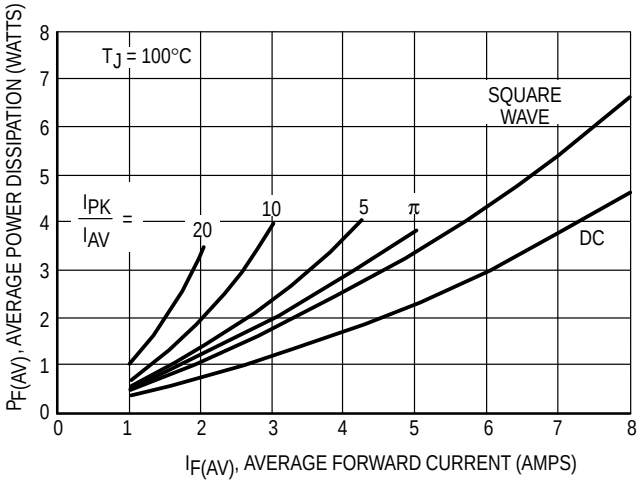


Figure 4. Typical Power Dissipation

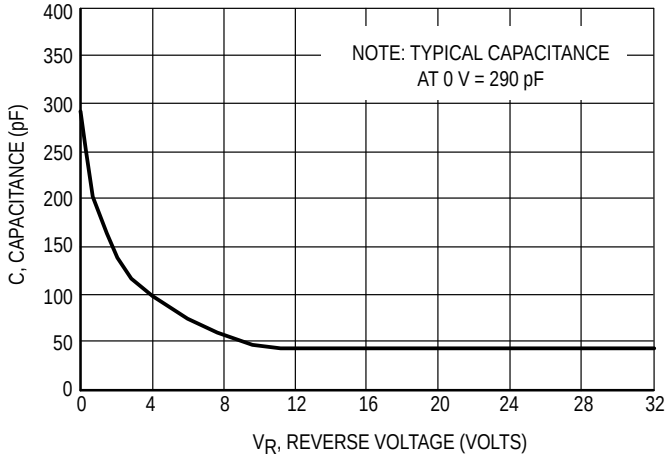
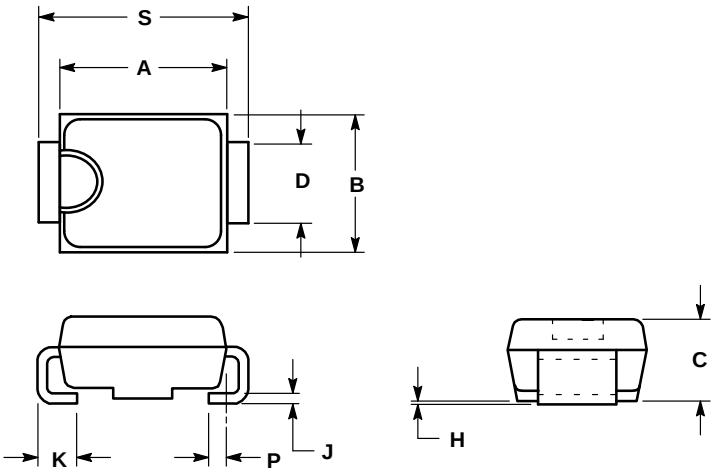


Figure 5. Typical Capacitance

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.160	0.180	4.06	4.57
B	0.130	0.150	3.30	3.81
C	0.075	0.095	1.90	2.41
D	0.077	0.083	1.96	2.11
H	0.0020	0.0060	0.051	0.152
J	0.006	0.012	0.15	0.30
K	0.030	0.050	0.76	1.27
P	0.020 REF		0.51 REF	
S	0.205	0.220	5.21	5.59

CASE 403A–03
ISSUE B

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