

Axial Lead Rectifier 80SQ045N

These devices employ 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 overlap contact. Ideally suited for use as rectifiers in low-voltage, high-frequency inverters, free wheeling diodes, and polarity protection diodes.

Features

- High Current Capability
- Low Stored Charge, Majority Carrier Conduction
- Low Power Loss/High Efficiency
- Highly Stable Oxide Passivated Junction
- Guard-Ring for Stress Protection
- Low Forward Voltage
- High Surge Capacity
- These are Pb-Free Devices*

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 1.1 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 220°C Max. for 10 Seconds, 1/16" from Case
- Polarity: Cathode indicated by Polarity Band
- ESD Protection: Human Body Model > 4000 V (Class 3) Machine Model > 400 V (Class C)

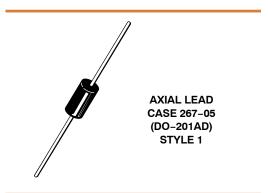
MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	45	٧
Average Rectified Forward Current T _L = 75°C (Psi _{JL} = 12°C/W, P.C. Board Mounting, Note 2)	I _O	8.0	Α
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I _{FSM}	140	Α
Operating and Storage Junction Temperature Range (Reverse Voltage Applied)	T _J , T _{stg}	-65 to +125	°C
Voltage Rate of Change (Rated V _R)	dv/dt	10	V/ns

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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SCHOTTKY BARRIER RECTIFIER 8.0 AMPERES



MARKING DIAGRAM



YY = Year WW = Work Week = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping [†]
80SQ045N	Axial Lead*	500 Units/Box
80SQ045NG	Axial Lead*	500 Units/Box
80SQ045NRLG	Axial Lead*	1500/Tape & Reel

DISCONTINUED (Note 1)

80SQ045NRL	Axial Lead*	1500/Tape & Reel
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[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

DISCONTINUED: This device is not recommended for new design. Please contact your onsemi representative for information. The most current information on this device may be available on www.onsemi.com.

^{*}For additional information on our Pb–Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

^{*}This package is inherently Pb-Free.

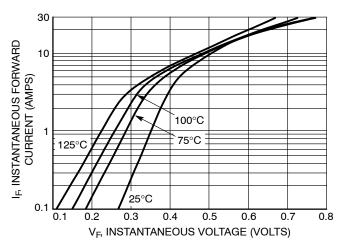
THERMAL CHARACTERISTICS

Characteristic		0.9 in x 0.9 in Copper Pad Size	6.75 in x 6.75 in Copper Pad Size	Unit
Thermal Resistance, Junction-to-Lead (See Note 2 – Mounting Data)	$R_{ heta JL}$	13	12	°C/W
Thermal Resistance, Junction-to-Ambient (See Note 2 - Mounting Data)	$R_{\theta JA}$	50	40	

ELECTRICAL CHARACTERISTICS ($T_L = 25^{\circ}C$ unless otherwise noted)

Characteristic	Symbol	Max	Unit
Maximum Instantaneous Forward Voltage (Note 1) (i _F = 8.0 A, T _L = 25°C)	V _F	0.55	V
Maximum Instantaneous Reverse Current @ Rated dc Voltage (Note 1) $T_L = 25^{\circ}C$ $T_L = 100^{\circ}C$	İR	1.0 50	mA

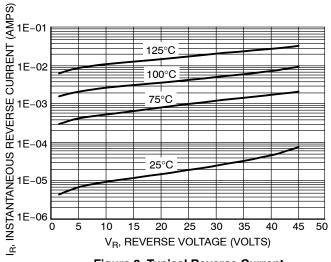
^{1.} Pulse Test: Pulse Width = 300 μs, Duty Cycle = 2.0%.



30 10 10 10 10 100°C MBR845 100°C 125°C 0.1 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 V_E INSTANTANEOUS VOLTAGE (VOLTS)

Figure 1. Typical Forward Voltage

Figure 2. Maximum Forward Voltage



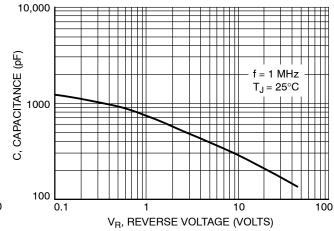


Figure 3. Typical Reverse Current

Figure 4. Typical Capacitance

80SQ045N

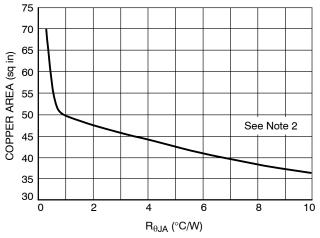


Figure 5. R_{θJA} versus Copper Area

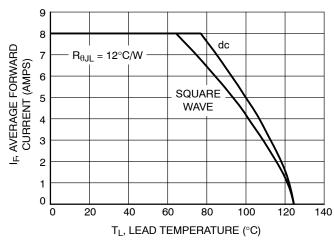


Figure 6. Current Derating - Lead

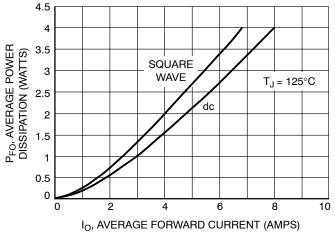
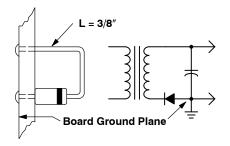


Figure 7. Forward Power Dissipation

NOTE 2 — MOUNTING DATA

Mounting Method

P.C. Board with 6.75 sq. in. copper surface.



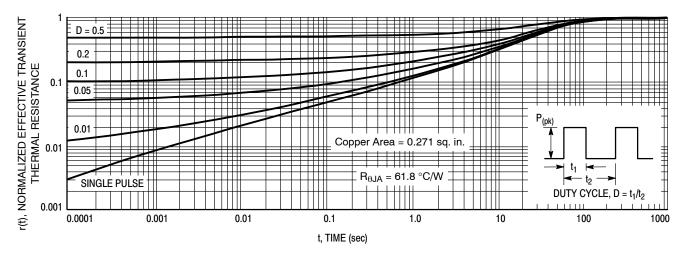
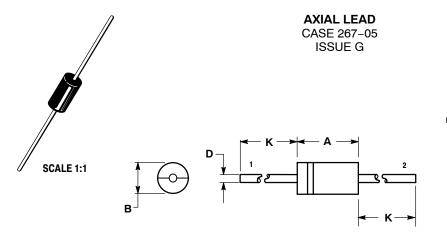


Figure 8. Thermal Response, Junction-to-Ambient

MECHANICAL CASE OUTLINE







DATE 06 JUN 2000

NOTES:

- NOTES:

 1. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M, 1982.

 2. CONTROLLING DIMENSION: INCH.

 3. 267-04 OBSOLETE, NEW STANDARD 267-05.

	INCHES		MILLIM	ETERS
DIM	MIN	MAX	MIN	MAX
Α	0.287	0.374	7.30	9.50
В	0.189	0.209	4.80	5.30
D	0.047	0.051	1.20	1.30
K	1.000		25.40	

STYLE 1: PIN 1. CATHODE (POLARITY BAND) 2. ANODE STYLE 2: NO POLARITY

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