

80SQ045N

Preferred Device

Axial Lead Rectifier

...employing 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.

- 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 devices are available in Pb-free package(s). Specifications herein apply to both standard and Pb-free devices. Please see our website at www.onsemi.com for specific Pb-free orderable part numbers, or contact your local ON Semiconductor sales office or representative.**

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
- Shipped in plastic bags, 500 per bag
- Available Tape and Reeled, 1500 per reel, by adding a "RL" suffix to the part number
- Polarity: Cathode indicated by Polarity Band
- ESD Protection: Human Body Model > 4000 V (Class 3)
Machine Model > 400 V (Class C)

MAXIMUM RATINGS

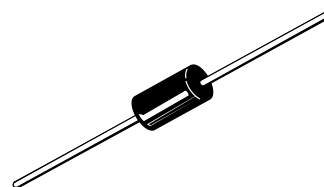
Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	45	V
Average Rectified Forward Current $T_L = 75^\circ\text{C}$ ($\text{Psi}_{JL} = 12^\circ\text{C}/\text{W}$, P.C. Board Mounting, see Note 2)	I_O	8.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	140	A
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



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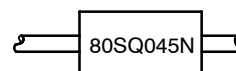
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SCHOTTKY BARRIER RECTIFIER 8.0 AMPERES



AXIAL LEAD
CASE 267-05
(DO-201AD)
STYLE 1

MARKING DIAGRAM



80SQ045N= Device Code

ORDERING INFORMATION

Device	Package	Shipping
80SQ045N	Axial Lead	500 Units/Bag
80SQ045NRL	Axial Lead	1500/Tape & Reel

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

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THERMAL CHARACTERISTICS

Characteristic	Symbol	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)	$R_{\theta JL}$	13	12	$^{\circ}C/W$
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) ($i_F = 8.0$ Amps, $T_L = 25^{\circ}C$)	V_F	0.55	V
Maximum Instantaneous Reverse Current @ Rated dc Voltage (Note 1) $T_L = 25^{\circ}C$ $T_L = 100^{\circ}C$	i_R	1.0 50	mA

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

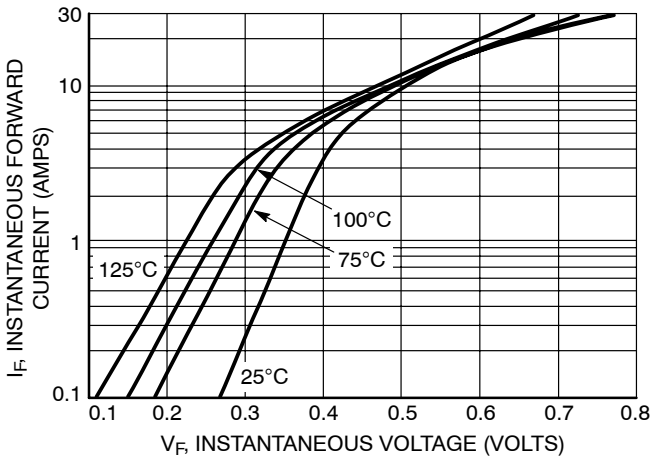


Figure 1. Typical Forward Voltage

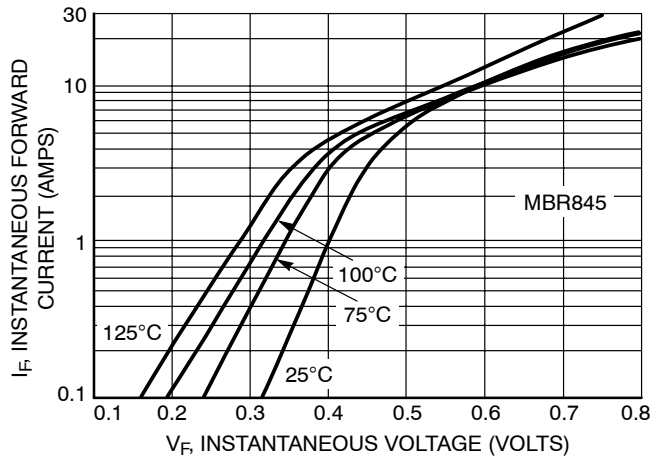


Figure 2. Maximum Forward Voltage

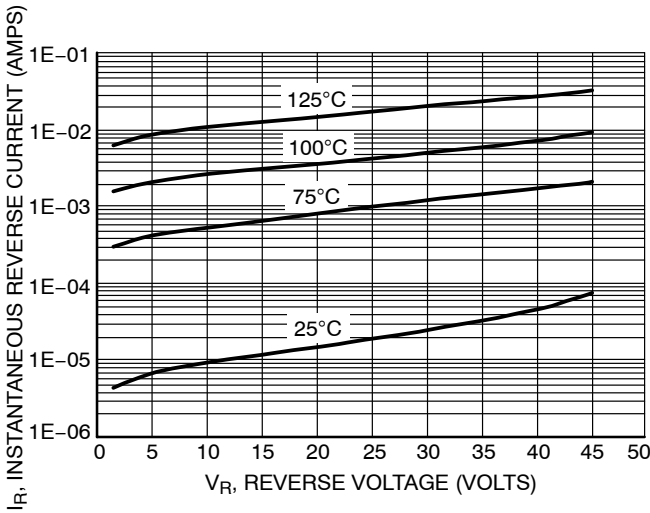


Figure 3. Typical Reverse Current

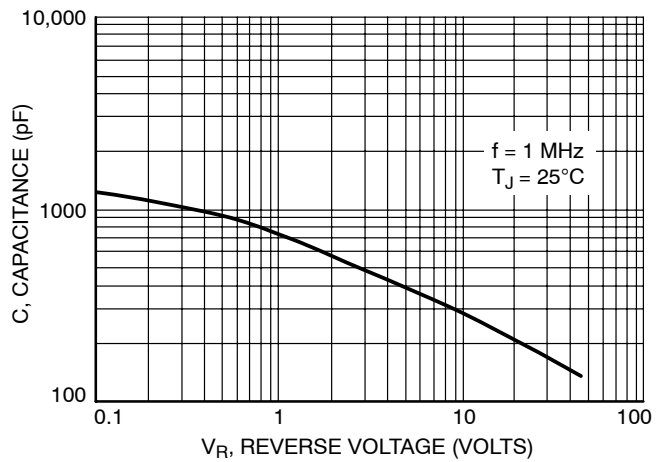


Figure 4. Typical Capacitance

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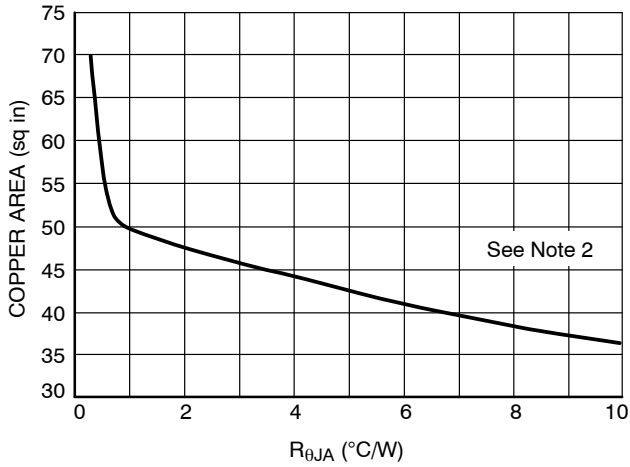


Figure 5. $R_{\theta JA}$ versus Copper Area

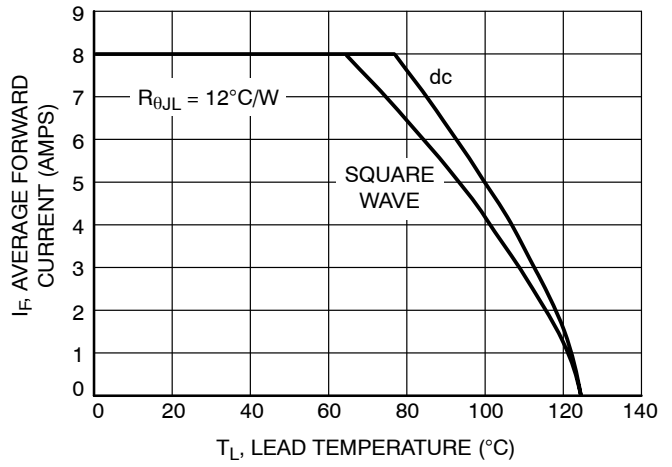


Figure 6. Current Derating - Lead

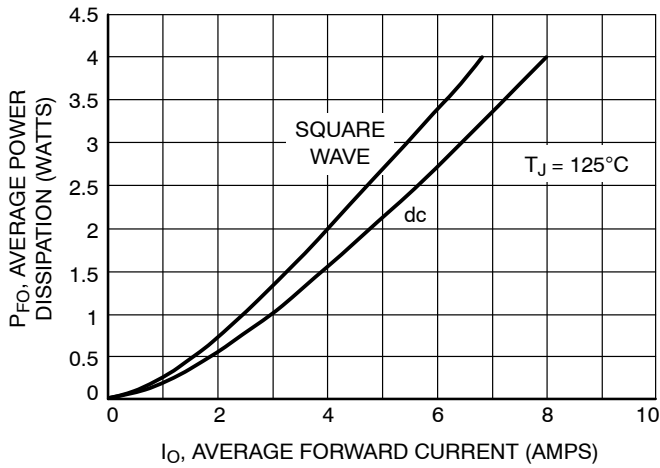


Figure 7. Forward Power Dissipation

NOTE 2 — MOUNTING DATA

Mounting Method

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

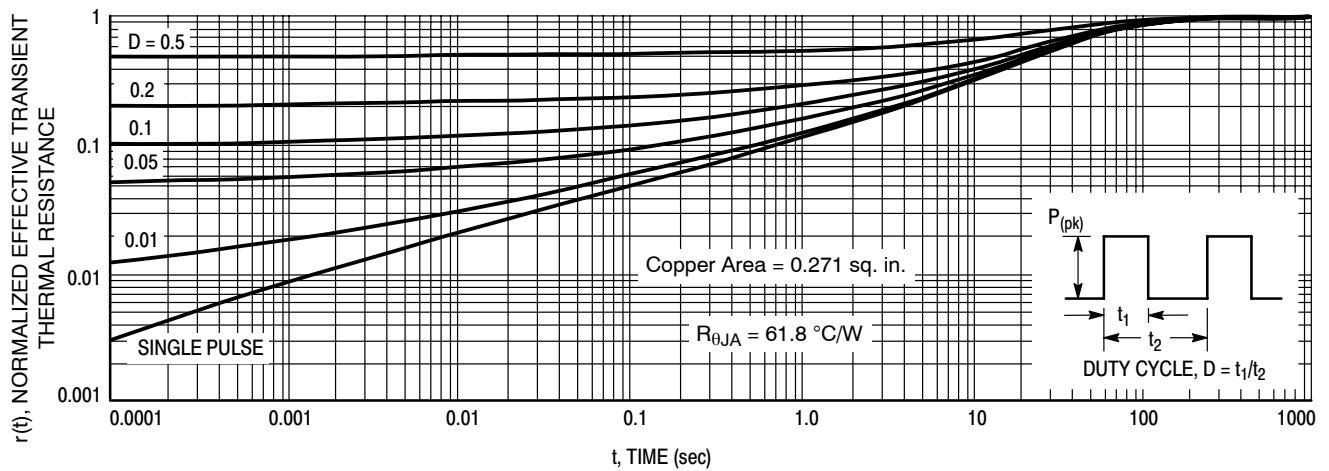
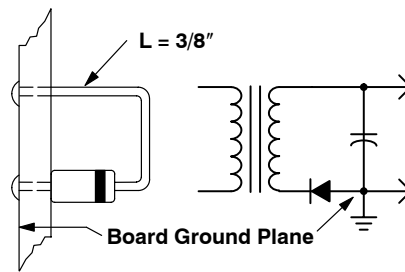
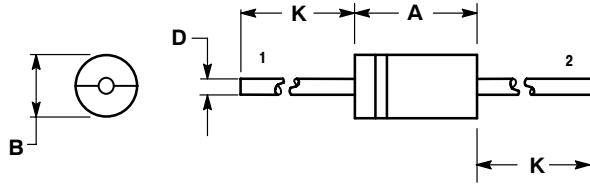


Figure 8. Thermal Response, Junction-to-Ambient

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PACKAGE DIMENSIONS

AXIAL LEAD CASE 267-05 (DO-201AD) ISSUE G




NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.287	0.374	7.30	9.50
B	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)
- PIN 2. ANODE

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