

# 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

### 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

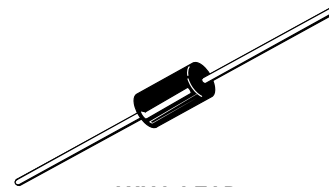
Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	45	V
Average Rectified Forward Current $T_L = 75^\circ\text{C}$ ( $\text{Psi}_{JL} = 12^\circ\text{C/W}$ , P.C. Board Mounting, see Note 2)	$I_O$	8.0	A
Non-Repetitive Peak 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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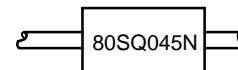
<http://onsemi.com>

## 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  $\mu s$ , Duty Cycle = 2.0%.

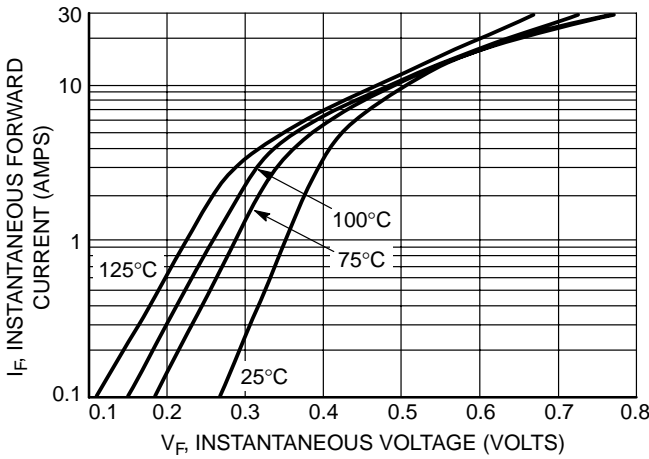


Figure 1. Typical Forward Voltage

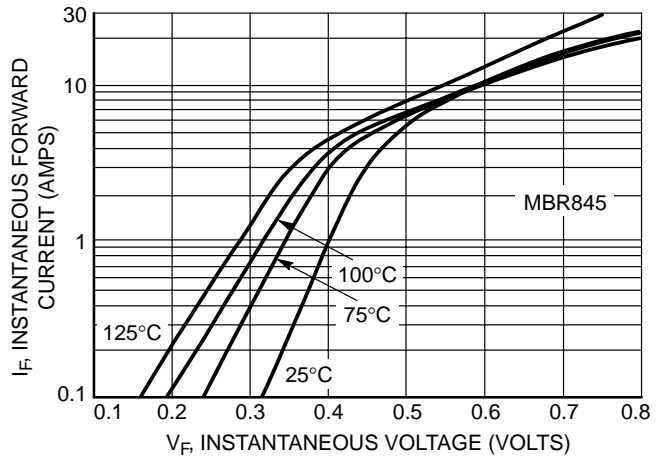


Figure 2. Maximum Forward Voltage

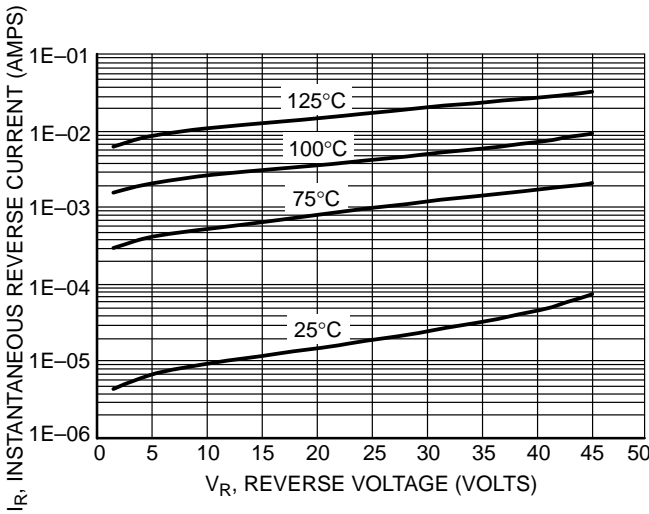


Figure 3. Typical Reverse Current

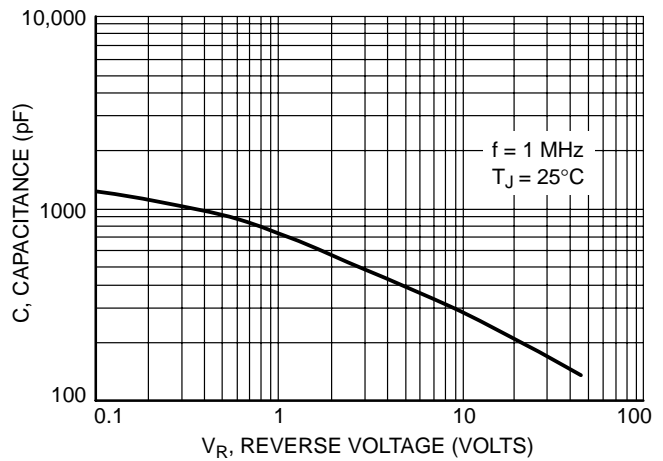


Figure 4. Typical Capacitance

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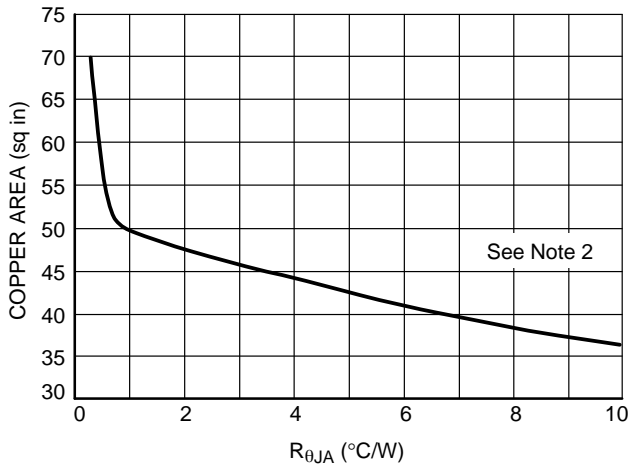


Figure 5.  $R_{\theta JA}$  versus Copper Area

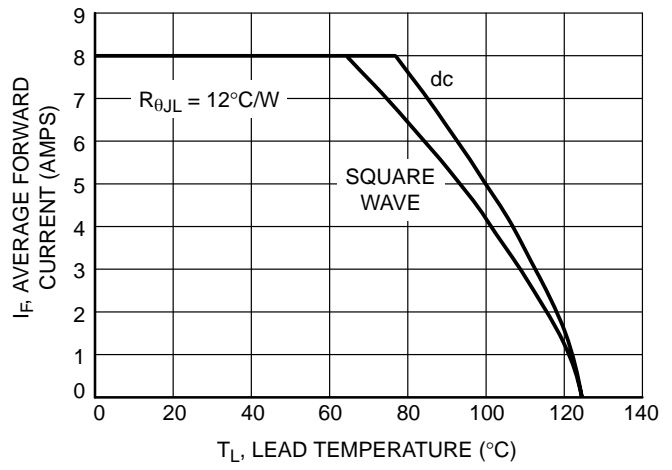


Figure 6. Current Derating - Lead

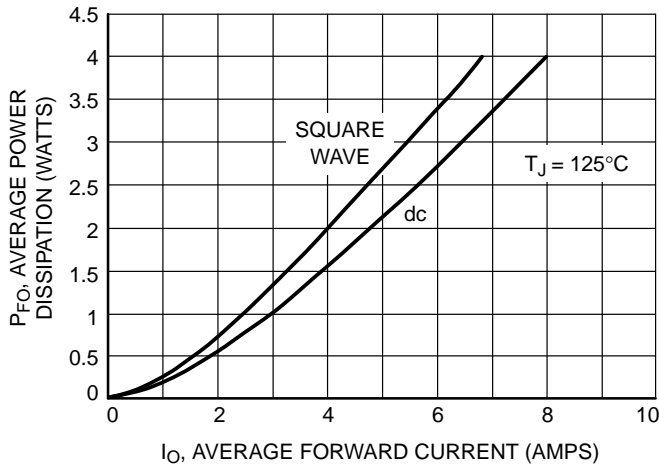


Figure 7. Forward Power Dissipation

## NOTE 2 — MOUNTING DATA

### Mounting Method

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

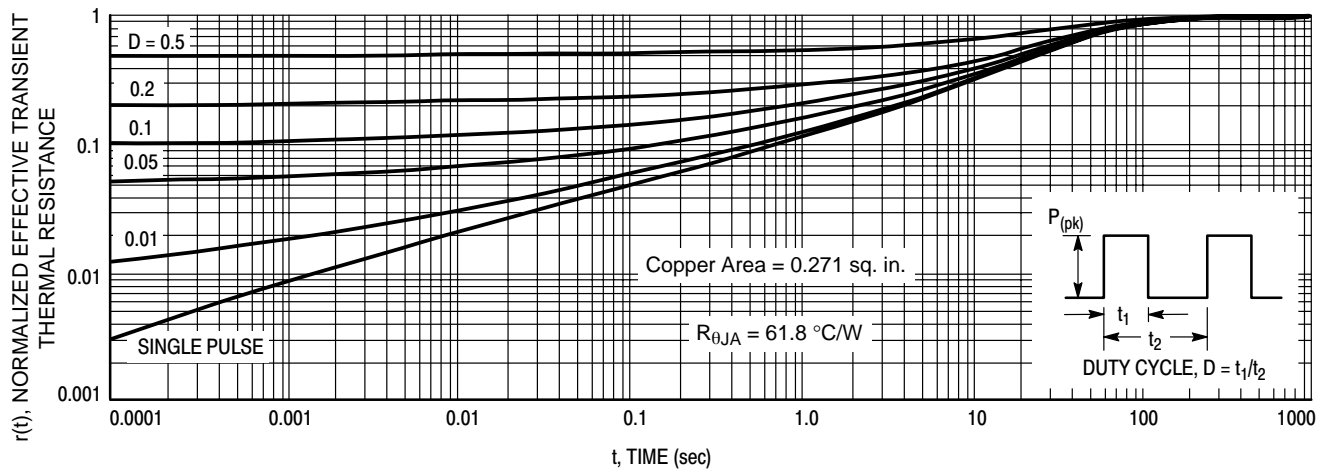
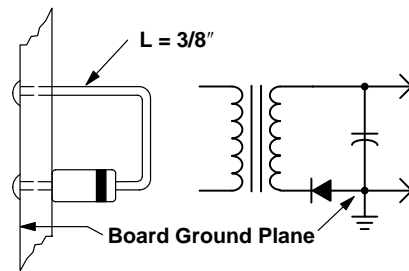
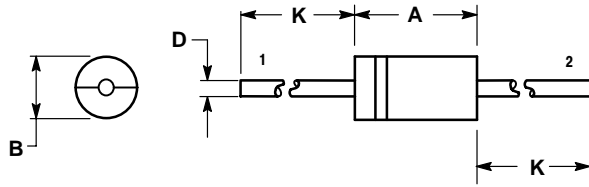


Figure 8. Thermal Response, Junction-to-Ambient

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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)
- ANODE

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