

## Schottky Diodes



### Features

- High frequency operation
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Solder dip 275 °C max. 7s, per JESD 22-B106

### Typical Applications

Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

### Mechanical Data

- **Package:** R-7  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Color band denotes cathode end

### ■Maximum Ratings (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	12SQ045
Device marking code			12SQ045
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	V	45
Average Rectified Output Current @60Hz sine wave, R-load, T <sub>a</sub> =25°C	I <sub>O</sub>	A	12
Surge(Non-repetitive)Forward Current @60HZ sine wave, 1 cycle, T <sub>a</sub> =25°C	I <sub>FSM</sub>	A	275
Current Squared Time @ 1ms≤t<8.3ms T <sub>j</sub> =25°C,	I <sup>2</sup> t	A <sup>2</sup> S	166
Storage Temperature	T <sub>stg</sub>	°C	-55 ~+150
Junction Temperature IN DC Forward Mode-Forward Operations, without reverse bias, t ≤1 h (Fig. 1)①	T <sub>j</sub>	°C	-55 ~+200

### NOTE

- ① Meets the requirements of IEC 61215 Ed. 2 bypass diode thermal test.

### ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	12SQ045
Maximum instantaneous forward voltage drop per diode	V <sub>FM</sub>	V	I <sub>FM</sub> =12.0A	0.50
Maximum DC reverse current at rated DC blocking voltage per diode	I <sub>RRM1</sub>	mA	V <sub>RM</sub> =V <sub>RRM</sub> T <sub>a</sub> =25°C	0.1
	I <sub>RRM2</sub>		V <sub>RM</sub> =V <sub>RRM</sub> T <sub>a</sub> =100°C	5
	I <sub>RRM3</sub>		V <sub>RM</sub> =V <sub>RRM</sub> T <sub>a</sub> =125°C	18



# 12SQ045

## ■ Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER		SYMBOL	UNIT	12SQ045
Thermal Resistance	Between junction and case	R <sub>θJ-C</sub>	°CW	2.2

## ■ Ordering Information (Example)

PREFERED P/N	UNIT WEIGHT(g)	MINIIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
12SQ045	Approximate 1.944	500	/	5000	Tape
12SQ045	Approximate 1.944	750	/	3000	Reel

## ■ Characteristics (Typical)

FIG1: I<sub>o</sub>-T<sub>c</sub> Curve

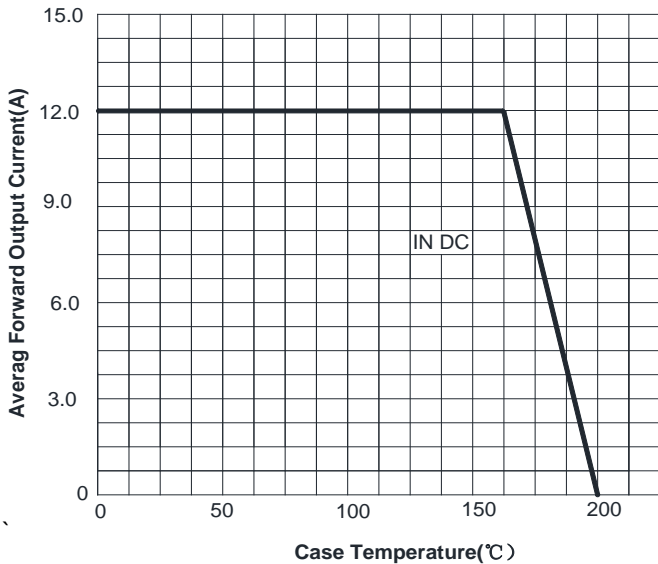


FIG2: Surge Forward Current Capability

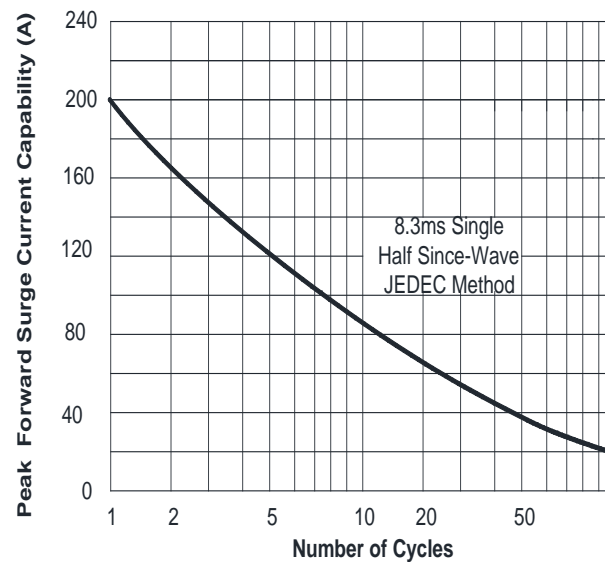


FIG3: Forward Voltage

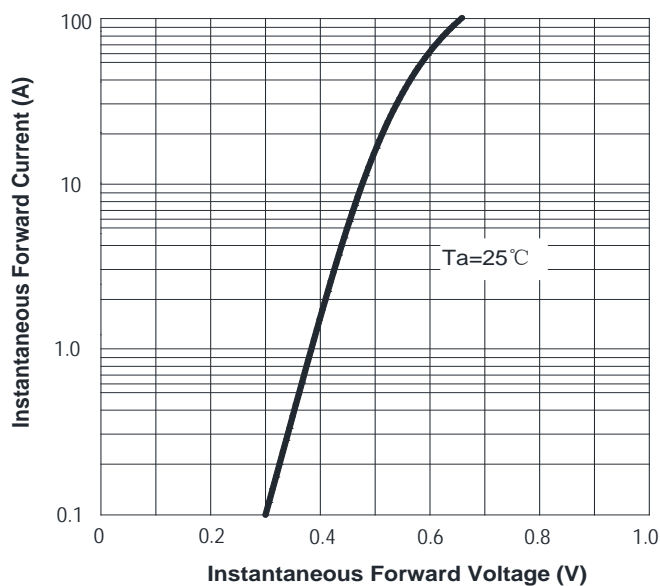
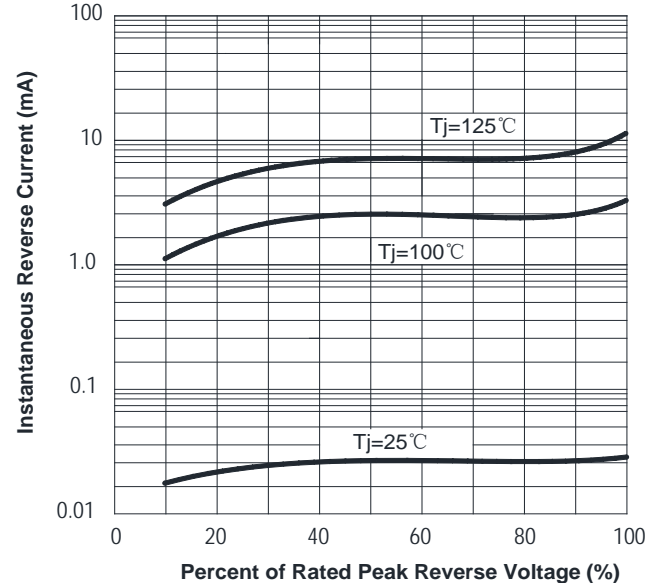
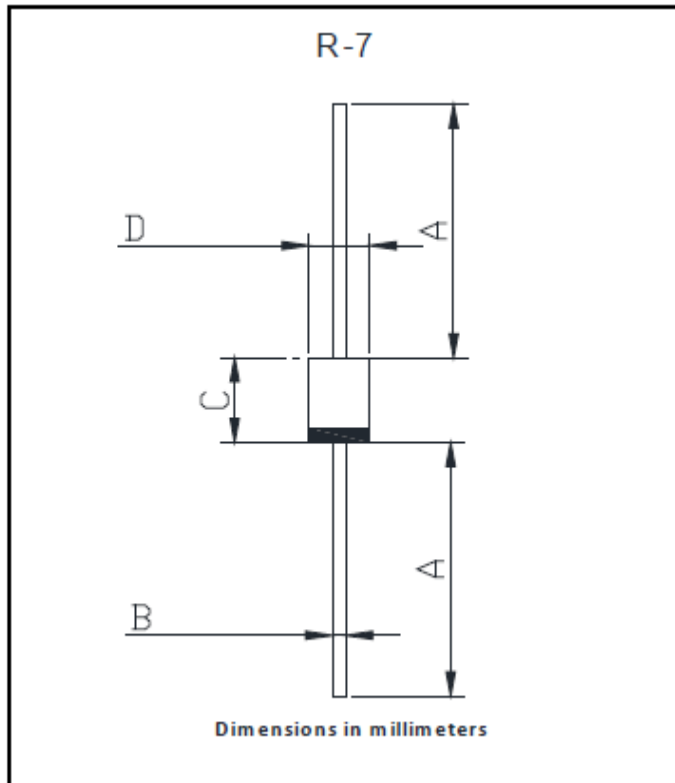


FIG4: Typical Reverse Characteristics



## ■Outline Dimensions



R-7		
Dim	Min	Max
A	25.4	/
B	1.2	1.4
C	7.3	7.7
D	7.8	8.2



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