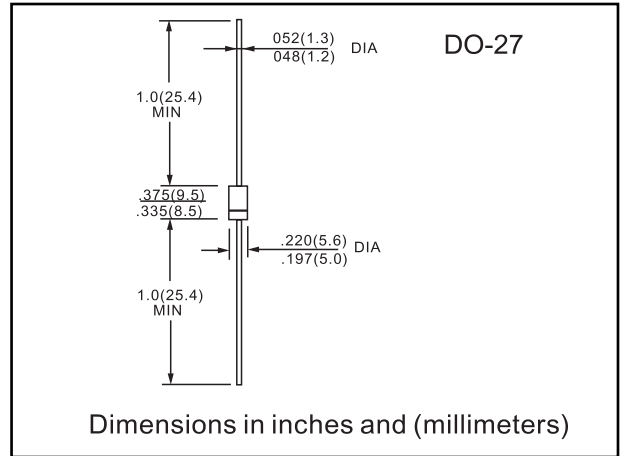


**FEATURES**

- 175° C T<sub>J</sub> operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term



**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

**VOLTAGE RATINGS**

PARAMETER	SYMBOL	90SQ030	90SQ035	90SQ040	90SQ045	UNITS
Maximum DC reverse voltage	V <sub>R</sub>	30	35	40	45	V
Maximum working peak reverse voltage	V <sub>RWM</sub>					

**ABSOLUTE MAXIMUM RATINGS**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current See fig. 5	I <sub>F(AV)</sub>	50 % duty cycle at T <sub>C</sub> = 69 °C, rectangular waveform	9	A
Maximum peak one cycle non-repetitive surge current See fig. 7	I <sub>FSM</sub>	5 μs sine or 3 μs rect. pulse	2150	
		10 ms sine or 6 ms rect. pulse	340	
Non-repetitive avalanche energy	E <sub>AS</sub>	T <sub>J</sub> = 25 °C, I <sub>AS</sub> = 1.8 A, L = 7.4 mH	12	mJ
Repetitive avalanche current	I <sub>AR</sub>	Current decaying linearly to zero in 1 μs Frequency limited by, T <sub>J</sub> maximum V <sub>A</sub> = 1.5 x V <sub>R</sub> typical	1.8	A

**ELECTRICAL SPECIFICATIONS**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum forward voltage drop See fig. 1	V <sub>FM</sub> (1)	T <sub>J</sub> = 25 °C	9 A	0.48
			18 A	0.57
		T <sub>J</sub> = 125 °C	9 A	0.42
			18 A	0.52
Maximum reverse leakage current See fig. 2	I <sub>RM</sub> (1)	T <sub>J</sub> = 25 °C	1.75	mA
		T <sub>J</sub> = 125 °C	70	
Maximum junction capacitance	C <sub>T</sub>	V <sub>R</sub> = 5 V <sub>DC</sub> , (test signal range 100 kHz to 1 MHz) 25 °C	900	pF
Typical series inductance	L <sub>S</sub>	Measured lead to lead 5 mm from body	10.0	nH
Maximum voltage rate of change	dV/dt	Rated V <sub>R</sub>	10 000	V/μs

**THERMAL - MECHANICAL SPECIFICATIONS**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range	T <sub>J</sub> , T <sub>Stg</sub>		- 55 to 150	°C
Maximum thermal resistance, junction to lead	R <sub>thJL</sub>	DC operation; see fig. 4 1/8" lead length	8.0	°C/W
Typical thermal resistance, junction to air	R <sub>thJA</sub>		44	
Approximate weight			1.4	g
			0.049	oz.
Marking device		Case style DO-204AR (JEDEC)	90SQ030	
			90SQ035	
			90SQ040	
			90SQ045	





RATINGS AND CHARACTERISTIC CURVES 90SQ030 THRU 90SQ045

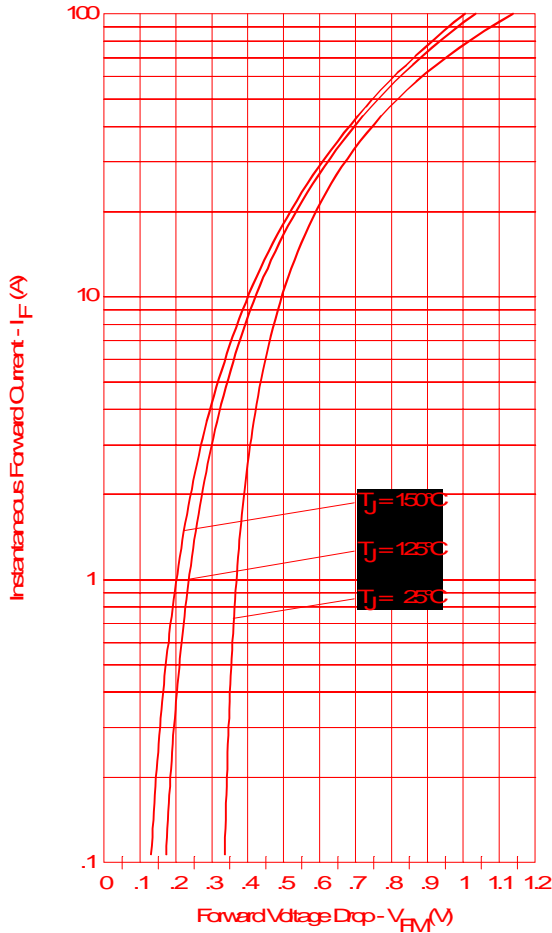


Fig. 1 - Maximum Forward Voltage Drop Characteristics

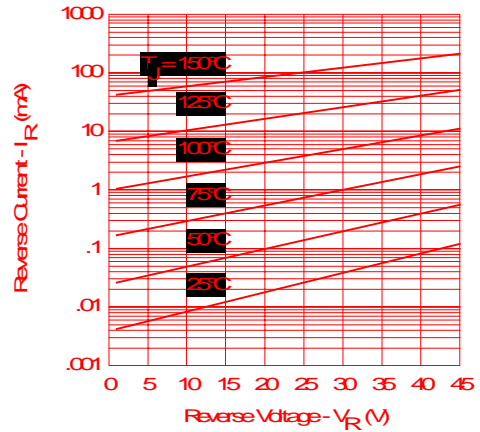


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

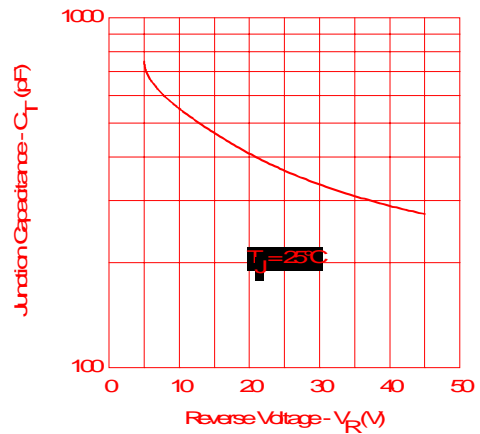


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

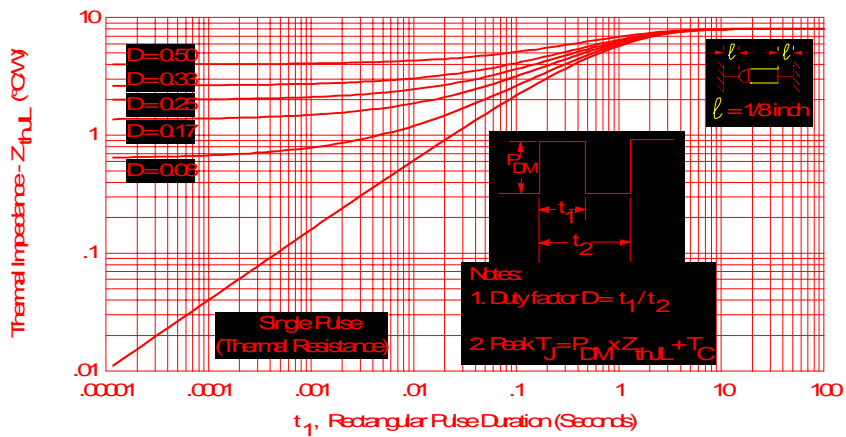


Fig. 4 - Maximum Thermal Impedance Z Characteristics

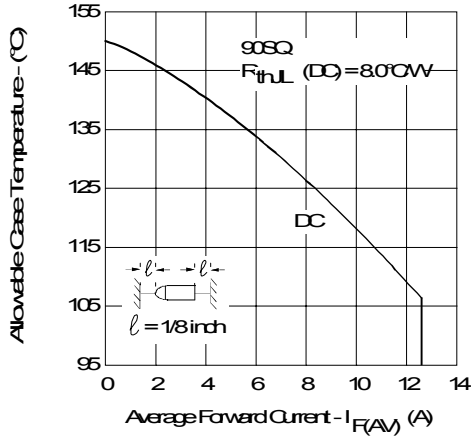


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

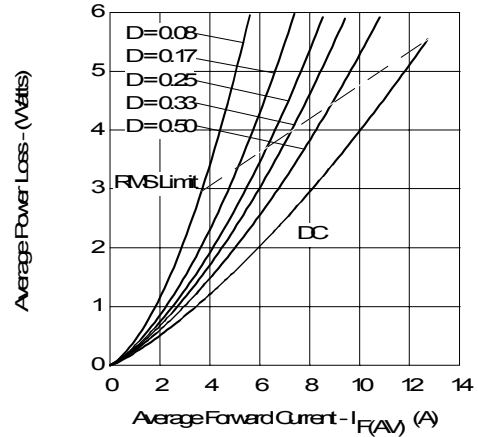


Fig. 6 - Forward Power Loss Characteristics

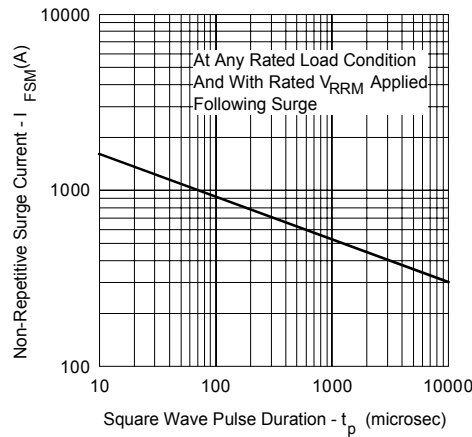


Fig. 7 - Maximum Non-Repetitive Surge Current

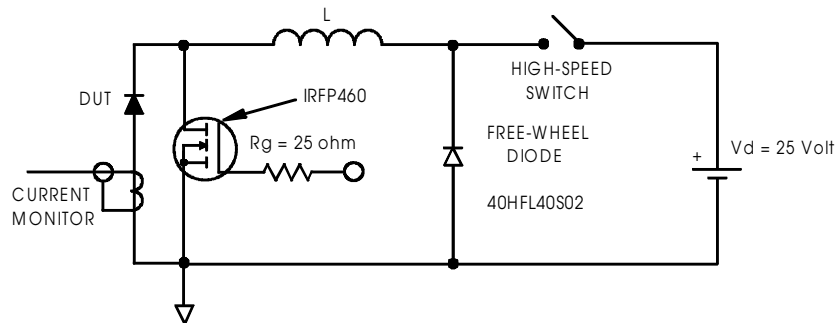


Fig. 8 - Unclamped Inductive Test Circuit