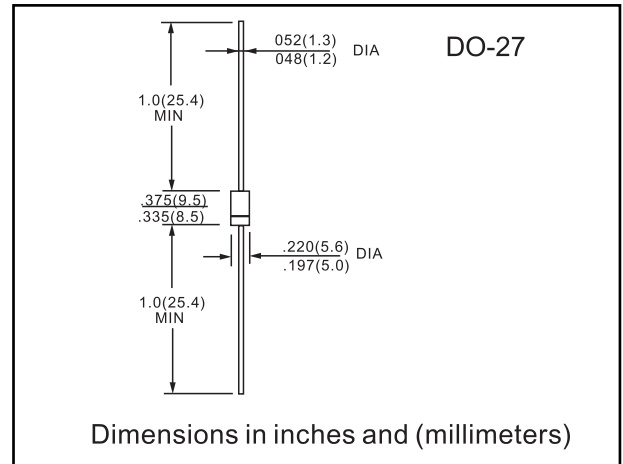


FEATURES

- 175° C T_J 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 reliability
- Compliant to RoHS directive 2002/95/EC
- Designed and qualified for industrial level


MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS
VOLTAGE RATINGS

PARAMETER	SYMBOL	50SQ060	50SQ080	50SQ100	UNITS
Maximum DC reverse voltage	V _R	60	80	100	V
Maximum working peak reverse voltage	V _{RWM}				

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current See fig. 5	I _{F(AV)}	50 % duty cycle at T _C = 119 °C, rectangular waveform	5	A
Maximum peak one cycle non-repetitive surge current See fig. 7	I _{FSM}	5 μs sine or 3 μs rect. pulse	1900	
		10 ms sine or 6 ms rect. pulse	290	
Non-repetitive avalanche energy	E _{AS}	T _J = 25 °C, I _{AS} = 1.0 A, L = 15 mH	7.5	mJ
Repetitive avalanche current	I _{AR}	Current decaying linearly to zero in 1 μs Frequency limited by, T _J maximum V _A = 1.5 x V _R typical	1.0	A

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum forward voltage drop See fig. 1	V _{FM} (1)	T _J = 25 °C	5 A	0.66
			10 A	0.77
		T _J = 125 °C	5 A	0.52
			10 A	0.62
Maximum reverse leakage current See fig. 2	I _{RM} (1)	T _J = 25 °C	0.55	mA
		T _J = 125 °C	7	
Maximum junction capacitance	C _T	V _R = 5 V _{DC} , (test signal range 100 kHz to 1 MHz), 25 °C	500	pF
Typical series inductance	L _S	Measured lead to lead 5 mm from body	10	nH
Maximum voltage rate of change	dV/dt	Rated V _R	10 000	V/μs

THERMAL - MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range	T _J , T _{Stg}		- 55 to 175	°C
Maximum thermal resistance, junction to lead	R _{thJL}	DC operation; see fig. 4 1/8" lead length	8.0	°C/W
Typical thermal resistance, junction to air	R _{thJA}		44	
Approximate weight			1.4	g
			0.049	oz.
Marking device		Case style DO-204AR (JEDEC)	50SQ060	
			50SQ080	
			50SQ100	

RATINGS AND CHARACTERISTIC CURVES 50SQ060 THRU 50SQ100

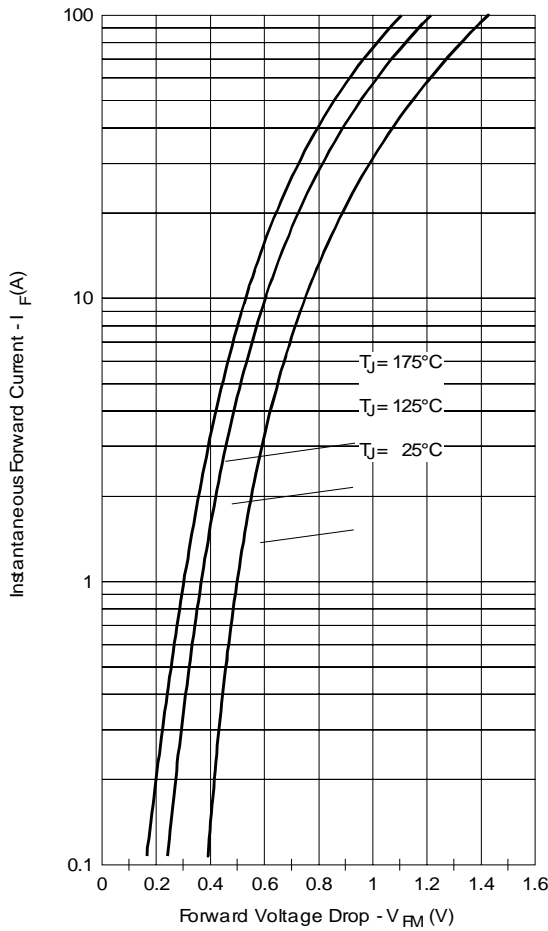


Fig. 1 - Maximum Forward Voltage Drop Characteristics

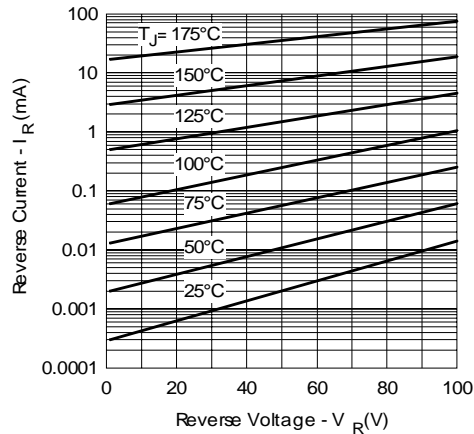


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

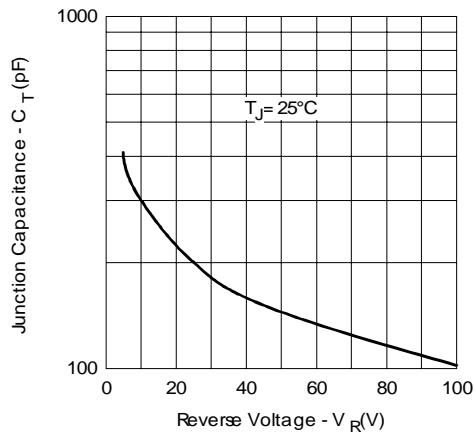


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

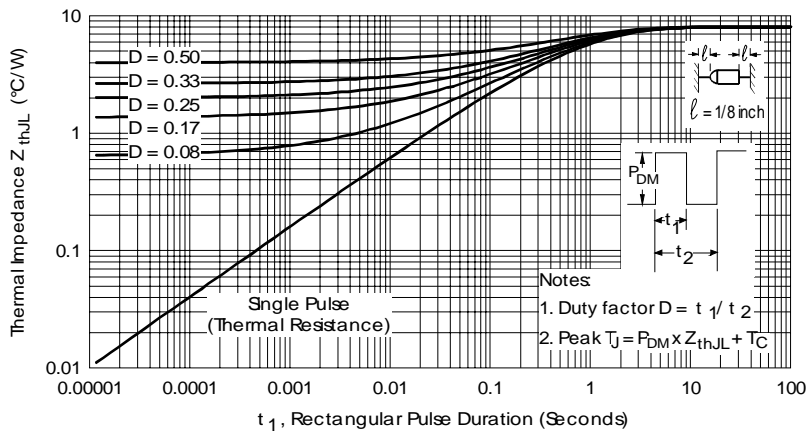


Fig. 4 - Maximum Thermal Impedance Z_{thJL} Characteristics

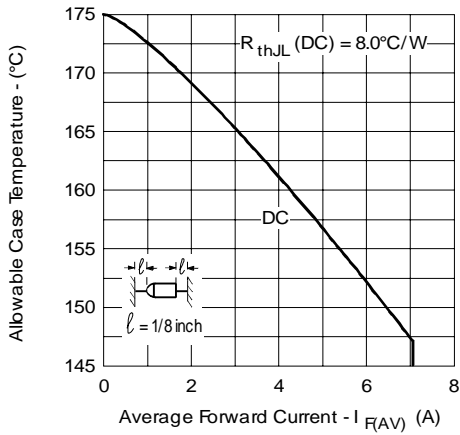


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

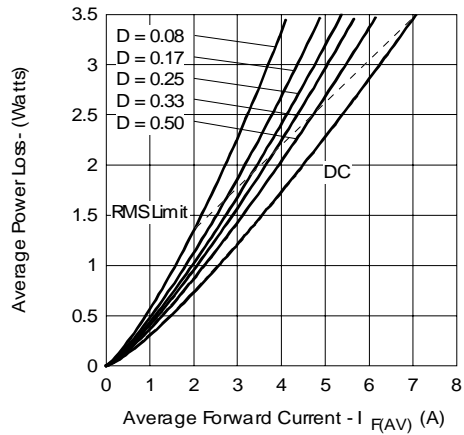


Fig. 6 - Forward Power Loss Characteristics

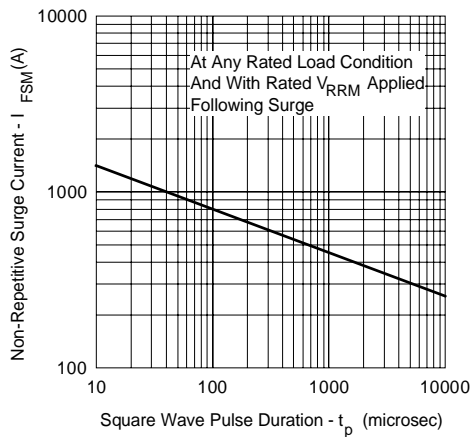


Fig. 7 - Maximum Non-Repetitive Surge Current

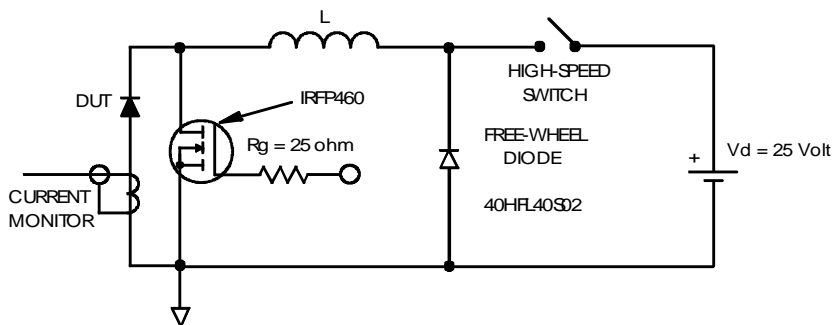


Fig. 8 - Unclamped Inductive Test Circuit