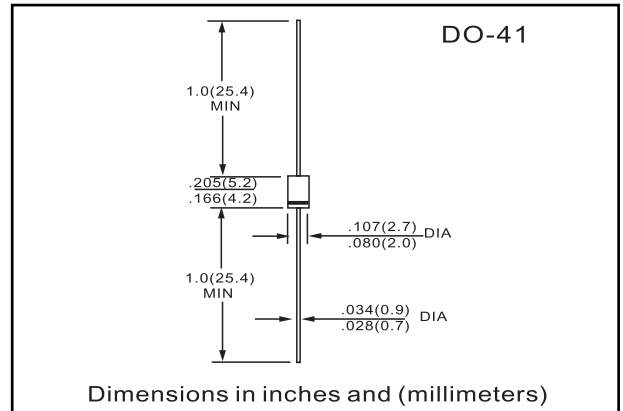


FEATURES

- Low profile, axial leaded outline
- High frequency operation
- Very 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
- Lead (Pb)-free plating
- Designed and qualified for industrial level



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

VOLTAGE RATINGS

PARAMETER	SYMBOL	11DQ03	11DQ04	UNITS
Maximum DC reverse voltage	V_R	30	40	V
Maximum working peak reverse voltage	V_{RWM}			

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current See fig. 4	$I_{F(AV)}$	50 % duty cycle at $T_C = 75^\circ\text{C}$, rectangular waveform	1.1	A
Maximum peak one cycle non-repetitive surge current See fig. 6	I_{FSM}	5 μs sine or 3 μs rect. pulse	225	
		10 ms sine or 6 ms rect. pulse	35	
Non-repetitive avalanche energy	E_{AS}	$T_J = 25^\circ\text{C}$, $I_{AS} = 1.0\text{ A}$, $L = 6\text{ mH}$	3.0	mJ
Repetitive avalanche current	I_{AR}	Current decaying linearly to zero in 1 μs Frequency limited by T_J maximum $V_A = 1.5 \times V_R$ typical	1.0	A

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum forward voltage drop See fig. 1	$V_{FM}^{(1)}$	1 A	0.55	V
		2 A		
		1 A	0.50	
		2 A		
Maximum reverse leakage current See fig. 2	$I_{RM}^{(1)}$	$T_J = 25^\circ\text{C}$	1.0	mA
		$T_J = 125^\circ\text{C}$	6.0	
Typical junction capacitance	C_T	$V_R = 5\text{ V}_{DC}$ (test signal range 100 kHz to 1 MHz) 25°C	60	pF
Typical series inductance	L_S	Measured lead to lead 5 mm from package body	8.0	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	$T_J^{(1)}$, T_{Stg}		- 40 to 150	$^\circ\text{C}$
Maximum thermal resistance, junction to ambient	R_{thJA}	DC operation Without cooling fin	100	$^\circ\text{C}/\text{W}$
Typical thermal resistance, junction to lead	R_{thJL}	DC operation See fig. 4	81	
Approximate weight			0.33	g
			0.012	oz.
Marking device		Case style DO-204AL (DO-41)	11DQ03	
			11DQ04	

Note

(1) $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{thJA}}$ thermal runaway condition for a diode on its own heatsink

RATINGS AND CHARACTERISTIC CURVES 11DQ03 THRU 11DQ04

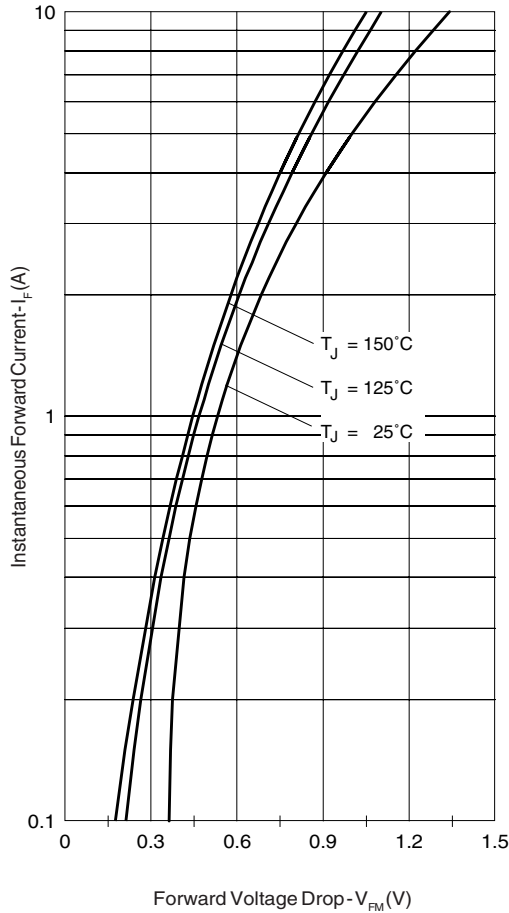


Fig. 1 - Max. Forward Voltage Drop Characteristics

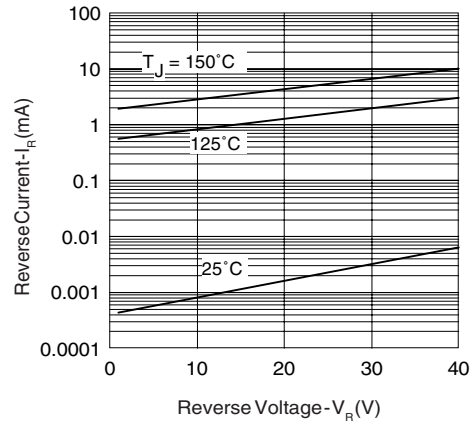


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

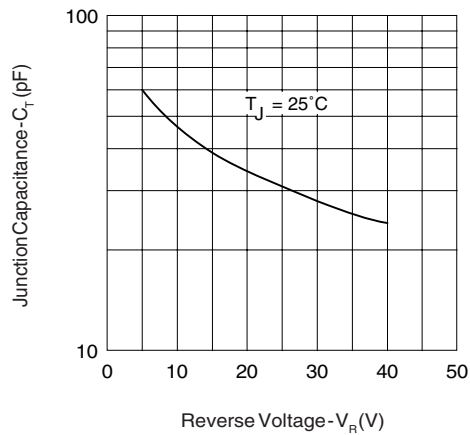


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

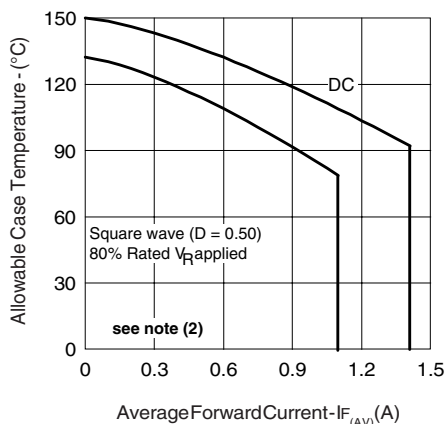


Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current

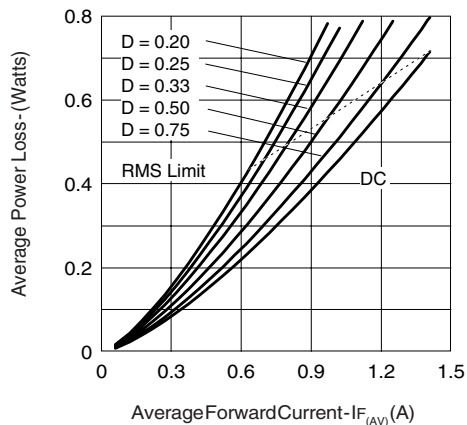


Fig. 5 - Forward Power Loss Characteristics

(2) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;

P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM}$ @ $(I_{F(AV)} / D)$ (see Fig. 6);

$P_{d_{REV}}$ = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; I_R @ V_{R1} = 80% rated V_R