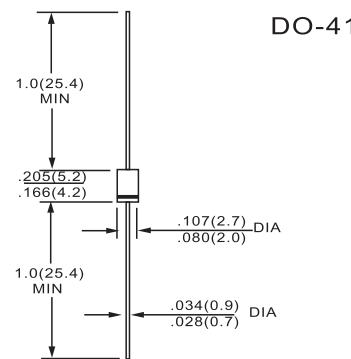


## FEATURES

- Low profile, axial leaded outline
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



Dimensions in inches and (millimeters)

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

## VOLTAGE RATINGS

PARAMETER	SYMBOL	11DQ09	11DQ10	UNITS
Maximum DC reverse voltage	V <sub>R</sub>			
Maximum working peak reverse voltage	V <sub>RWM</sub>	90	100	V

## ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current See fig. 4	I <sub>F(AV)</sub>	50 % duty cycle at T <sub>C</sub> = 75 °C, rectangular waveform	1.1	A
Maximum peak one cycle non-repetitive surge current See fig. 6	I <sub>FSM</sub>	5 µs sine or 3 µs rect. pulse	85	
		10 ms sine or 6 ms rect. pulse	14	
Non-repetitive avalanche energy	E <sub>AS</sub>	T <sub>J</sub> = 25 °C, I <sub>AS</sub> = 0.5 A, L = 8 mH	1.0	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	0.5	A

## ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum forward voltage drop See fig. 1	V <sub>FM</sub> (1)	1 A	0.85	V
		2 A	0.96	
		1 A	0.68	
		2 A	0.78	
Maximum reverse leakage current See fig. 2	I <sub>RM</sub> (1)	T <sub>J</sub> = 25 °C	0.5	mA
		T <sub>J</sub> = 125 °C	1.0	
Typical 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	35	pF
Typical series inductance	L <sub>S</sub>	Measured lead to lead 5 mm from package body	8.0	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> (1), T <sub>Stg</sub>		- 40 to 150	°C
Maximum thermal resistance, junction to ambient	R <sub>thJA</sub>	DC operation Without cooling fin	100	°C/W
Typical thermal resistance, junction to lead	R <sub>thJL</sub>	DC operation See fig. 4	81	
Approximate weight			0.33	g
			0.012	oz.
Marking device		Case style DO-204AL (DO-41)	11DQ09	
			11DQ10	

## 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 11DQ09 THRU 11DQ10

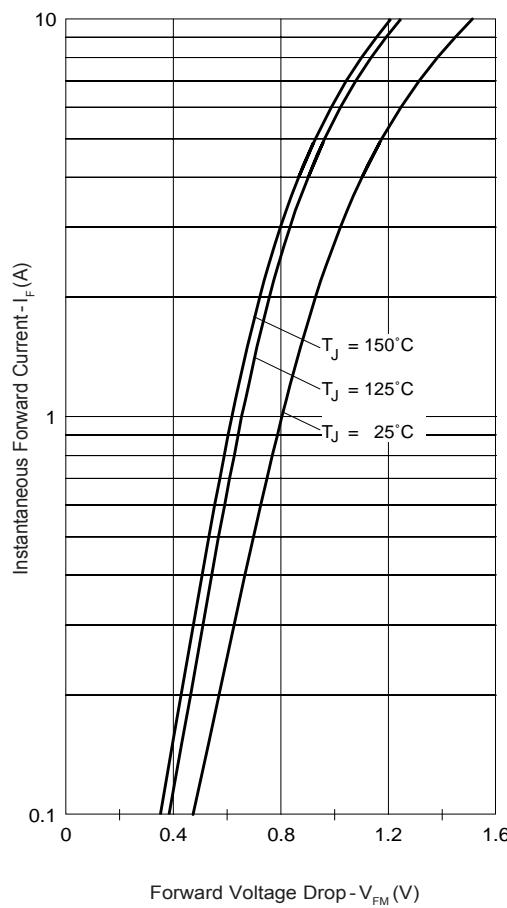


Fig. 1 - Max. Forward Voltage Drop Characteristics

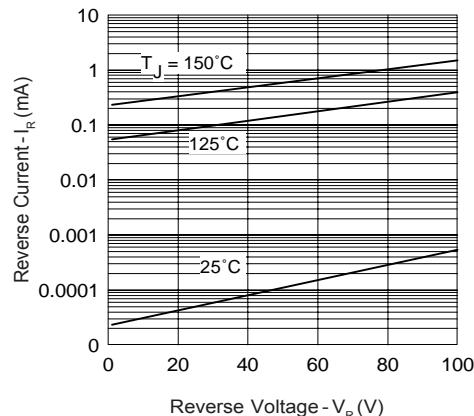


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

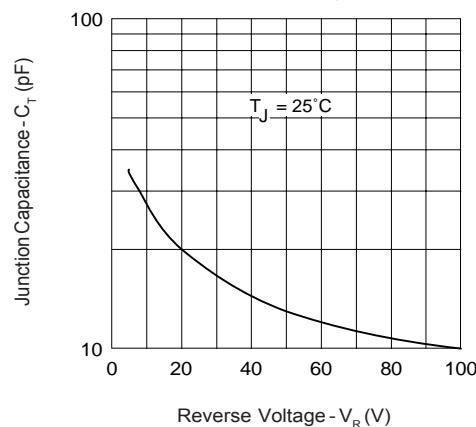


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

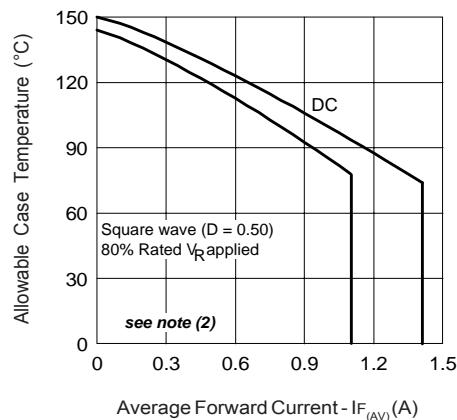


Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current

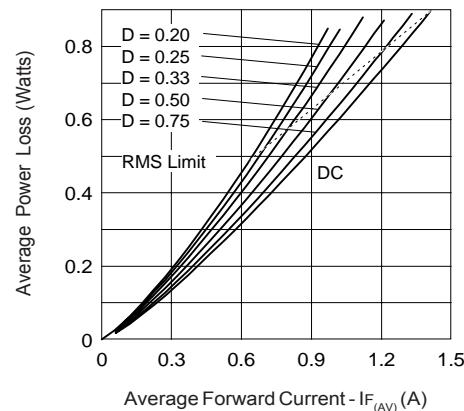


Fig. 5 - Forward Power Loss Characteristics

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

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

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