TAYCHIPST

SCHOTTKY RECTIFIER

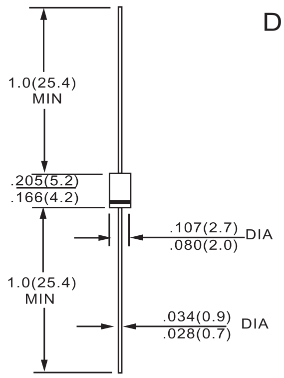
11DQ09 THRU 11DQ10

90V , 100V 1.1A

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

DO-41



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

VOLTAGE RATINGS

PARAMETER	SYMBOL	11DQ09	11DQ10	UNITS
Maximum DC reverse voltage	V_R	90	100	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 °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	Following any rated load condition and with rated V_{RRM} applied	85	
		10 ms sine or 6 ms rect. pulse		14	
Non-repetitive avalanche energy	E_{AS}	T_J = 25 °C, I_{AS} = 0.5 A, L = 8 mH		1.0	mJ
Repetitive avalanche current	I_{AR}	Current decaying linearly to zero in 1 µs Frequency limited by T_J maximum V_A = 1.5 x V_R typical		0.5	A

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop See fig. 1	V_{FM} (1)	1 A	T_J = 25 °C	0.85	V
		2 A		0.96	
		1 A	T_J = 125 °C	0.68	
		2 A		0.78	
Maximum reverse leakage current See fig. 2	I_{RM} (1)	T_J = 25 °C	V_R = Rated V_R	0.5	mA
		T_J = 125 °C		1.0	
Typical junction capacitance	C_T	V_R = 5 V_{DC} (test signal range 100 kHz to 1 MHz) 25 °C		35	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	°C
Maximum thermal resistance, junction to ambient	R_{thJA}	DC operation Without cooling fin	100	°C/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)	11DQ09	
			11DQ10	

Note

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

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RATINGS AND CHARACTERISTIC CURVES 11DQ09 THRU 11DQ10

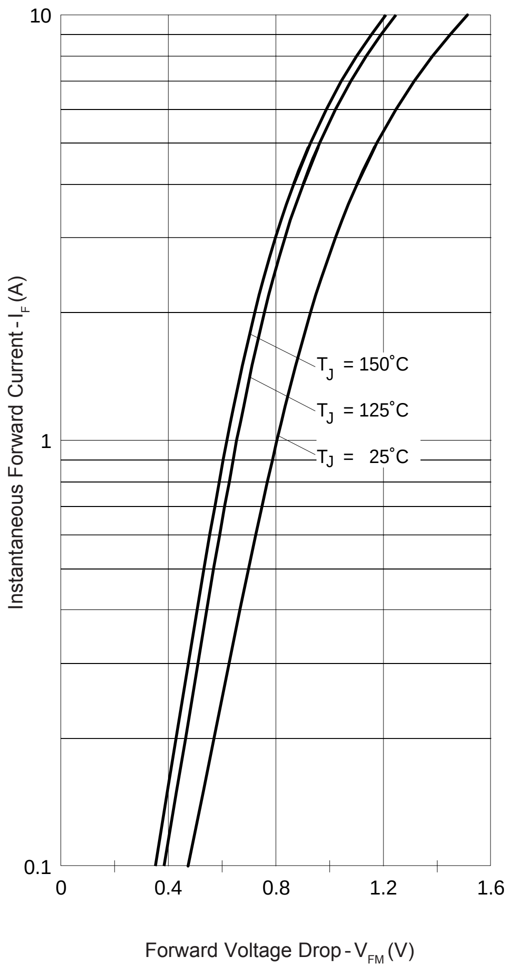

Fig. 1 - Max. Forward Voltage Drop Characteristics

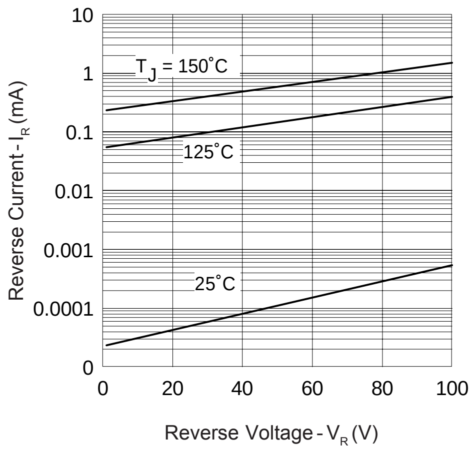

Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

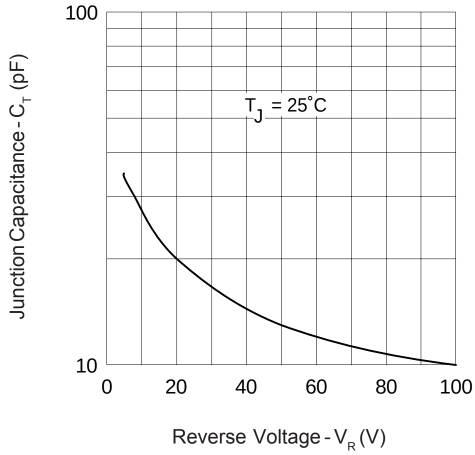

Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

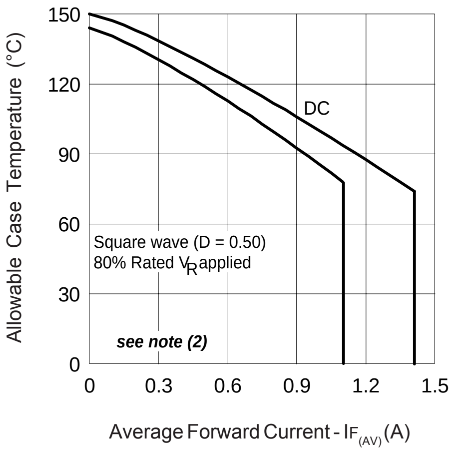

Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current

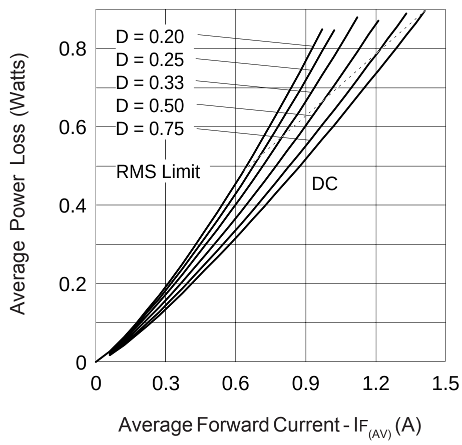

Fig. 5 - Forward Power Loss Characteristics

(2) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$;
Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM}$ @ $(I_{F(AV)} / D)$ (see Fig. 6);
Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; I_R @ V_{R1} = 80% rated V_R