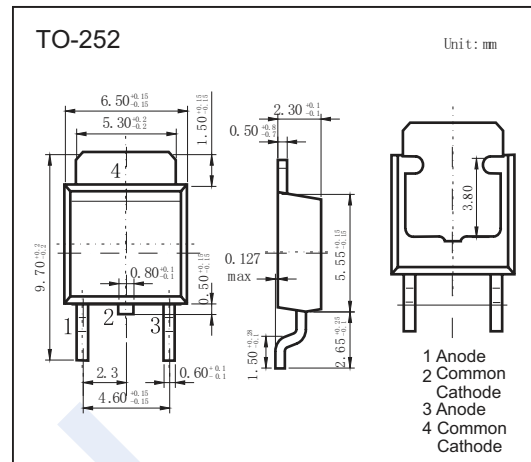
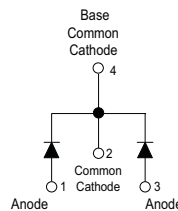


Schottky Rectifier

12CWQ03

■ Features

- $I_{F(AV)} = 12\text{ A}$
- $V_R = 30\text{ V}$
- Center tap configuration
- Small foot print, surface mountable
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



■ Voltage Ratings

Parameter	Symbol	Values	Unit
Max. DC Reverse Voltage	V_R	30	V
Max. Working Peak Reverse Voltage	V_{RWM}	30	

■ Absolute Maximum Ratings

Parameter	Symbol	Test Conditions	Values	Unit	
Max. Average Forward Current * See Fig. 5	Per Leg	$I_{F(AV)}$	50% duty cycle @ $T_c = 135^\circ\text{C}$, rectangular wave form	6	A
	Per Device				
Max. Peak One Cycle Non-Repetitive Surge Current(Per Leg) * See Fig. 7		I_{FSM}	5 μs Sine or 3 μs Rect. pulse	320	A
			10ms Sine or 6ms Rect. Pulse	130	
Non-Rep. Avalanche Energy (Per Leg)	E_{AS}	$T_J = 25^\circ\text{C}$, $I_{AS} = 2.0\text{ Amps}$, $L = 5\text{ mH}$	10	mJ	
Repetitive Avalanche Current (Per Leg)	I_{AR}	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical	2.0	A	
Max. Thermal Resistance Junction to Case	Per Leg	R_{thJC}	DC operation* See Fig. 4	3.0	$^\circ\text{C/W}$
	Per Device			1.5	
Junction Temperature *	T_J		150	$^\circ\text{C}$	
Storage Temperature	T_{stg}		-55 to 150		

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

Schottky Rectifier

12CWQ03

■ Electrical Characteristics

Parameter	Symbol	Test Conditions	Values	Unit	
Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	V_{FM}	$I_F = 6\text{ A}$	$T_J = 25^\circ\text{C}$	0.47	V
		$I_F = 12\text{ A}$		0.55	
		$I_F = 6\text{ A}$	$T_J = 125^\circ\text{C}$	0.37	
		$I_F = 12\text{ A}$		0.49	
Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	I_{RM}	$V_R = \text{rated } V_R$	$T_J = 25^\circ\text{C}$	3	mA
			$T_J = 125^\circ\text{C}$	58	
Threshold Voltage	$V_{F(TO)}$	$T_J = T_J \text{ max.}$	0.196	V	
Forward Slope Resistance	r_t		21.66	$\text{m}\Omega$	
Typ. Junction Capacitance(Per Leg)	C_T	$V_R = 5\text{Vdc}$ (test signal range 100Khz to 1Mhz) 25°C	590	pF	
Typical Series Inductance(Per Leg)	L_s	Measured lead to lead 5mm from package body	5.0	nH	

Notes:

(1) Pulse Width < 300 μs , Duty Cycle <2%

Schottky Rectifier

12CWQ03

■ Typical Characteristics

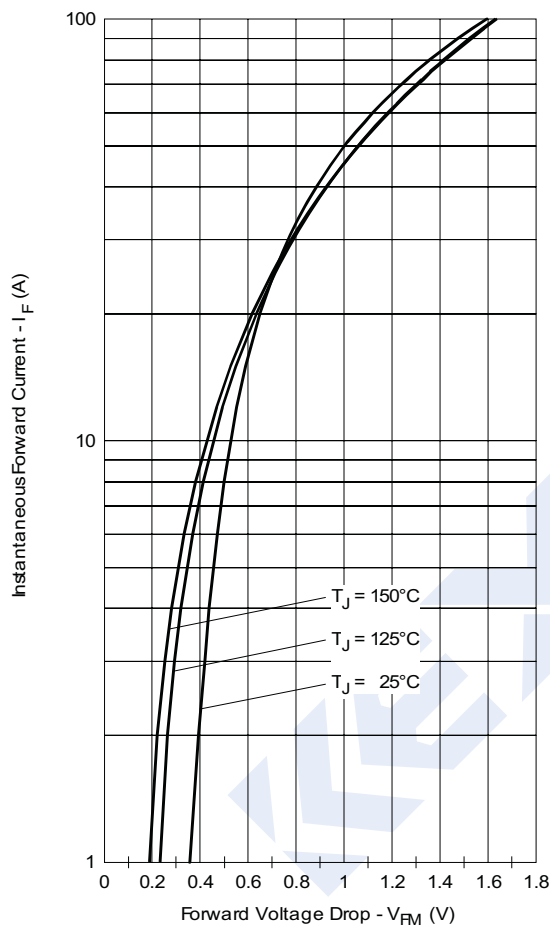


Fig. 1 - Max. Forward Voltage Drop Characteristics (PerLeg)

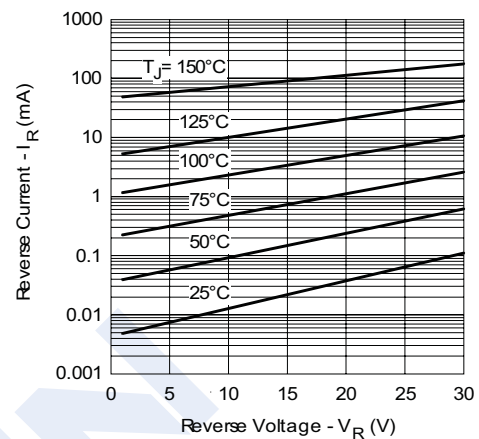


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (PerLeg)

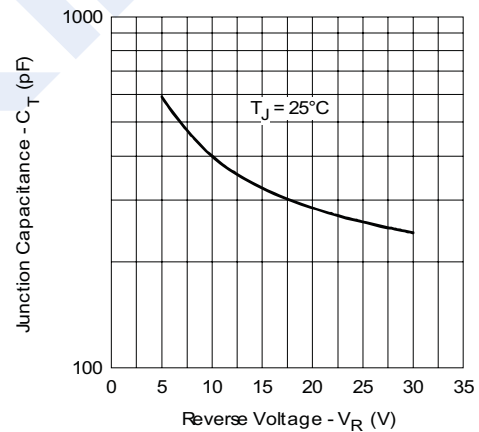


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (PerLeg)

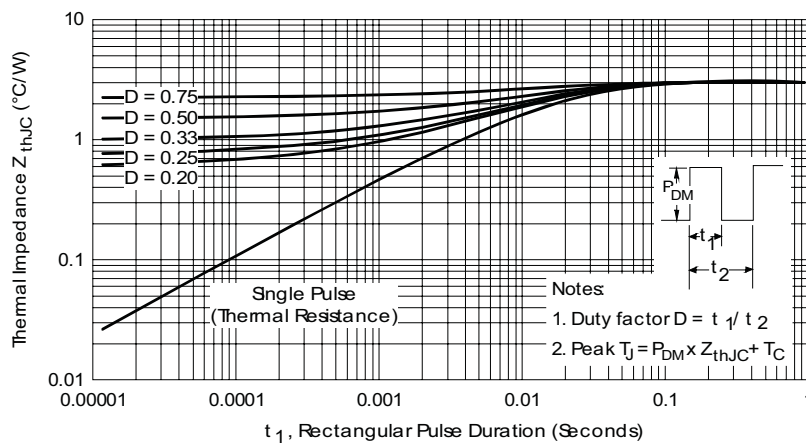


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (PerLeg)

Schottky Rectifier

12CWQ03

■ Typical Characteristics

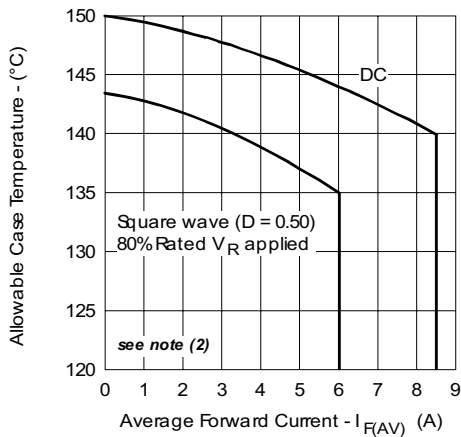


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

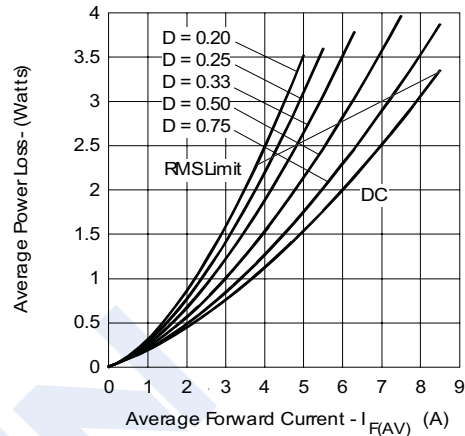


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

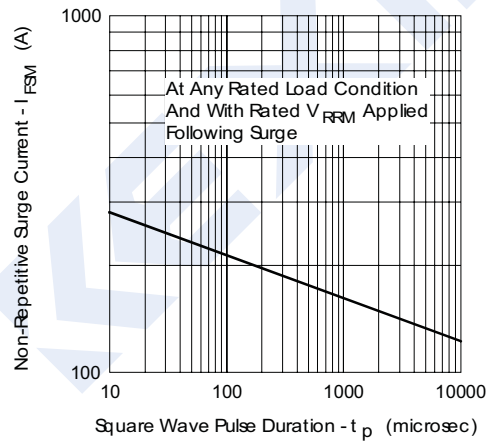


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

(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