MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	 SS22 SS24	V_{RRM} V_{RWM} V_R	 20 40	V
Average Rectified Forward Current (At Rated V_R, T_L = 100°C)		I_O	2.0	A
Peak Repetitive Forward Current (At Rated V_R, Square Wave, 100 kHz, T_C = 105°C)		I_{FRM}	3.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)		I_{FSM}	75	A
Storage/Operating Case Temperature		T_{stg}, T_C	−55 to +150	°C
Operating Junction Temperature (Note 1)		T_J	−55 to +150	°C
Voltage Rate of Change (Rated V_R, T_J = 25°C)		dv/dt	10,000	V/μs

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. The heat generated must be less than the thermal conductivity from Junction−to−Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction−to−Lead (Note 2) Thermal Resistance, Junction−to−Ambient (Note 3)	 $R_{\theta JL}$ $R_{\theta JA}$	 24 80	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 4) see Figure 2 (i_F = 2.0 A)	v_F	**T_J = 25°C** 0.50	**T_J = 125°C** 0.46	V
Maximum Instantaneous Reverse Current (Note 4) see Figure 4 (V_R = 40 V)	I_R	**T_J = 25°C** 0.4	**T_J = 100°C** 5.7	mA

2. Mounted with minimum recommended pad size, PC Board FR4.
3. 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board.
4. Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2.0%.

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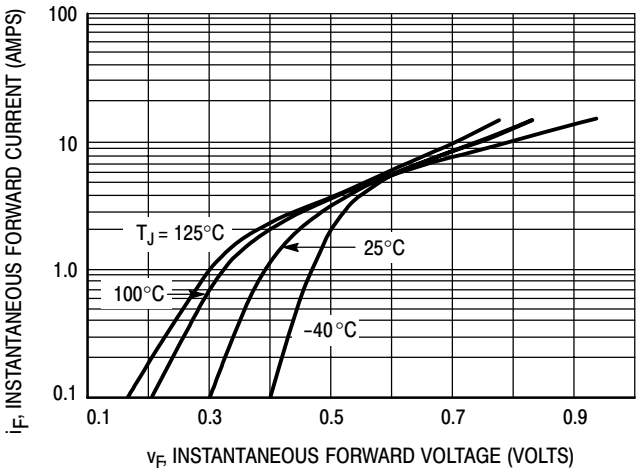

Figure 1. Typical Forward Voltage

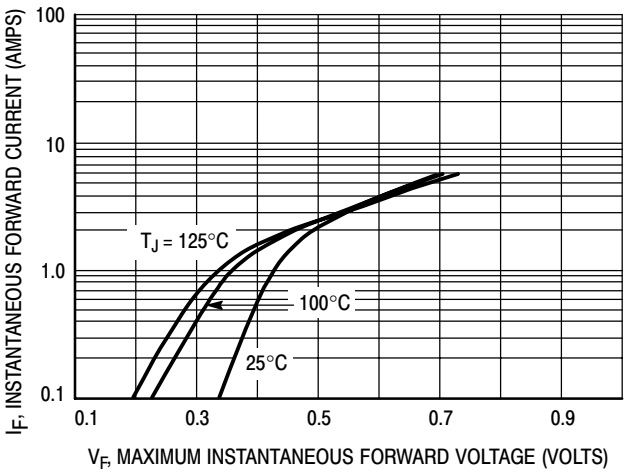

Figure 2. Maximum Forward Voltage

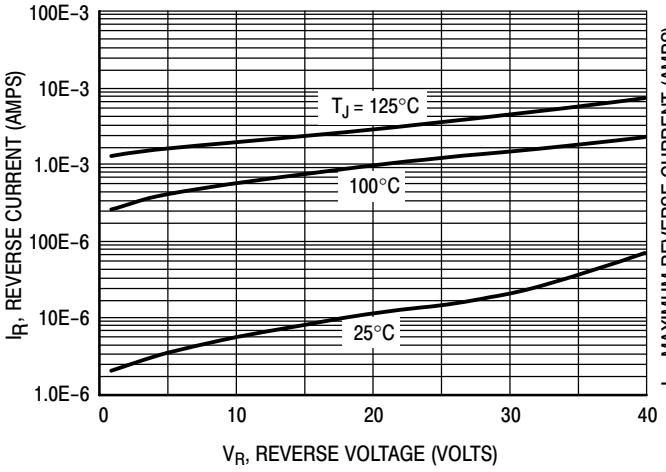

Figure 3. Typical Reverse Current

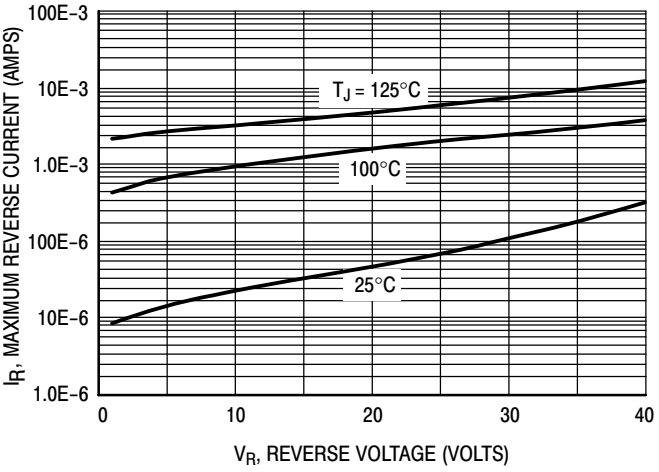

Figure 4. Maximum Reverse Current

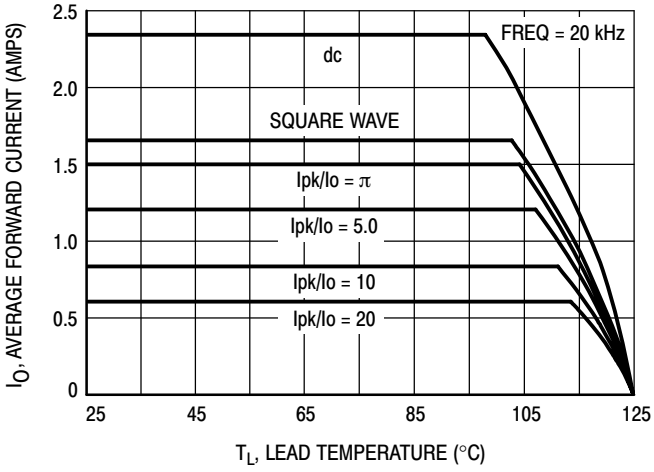

Figure 5. Current Derating

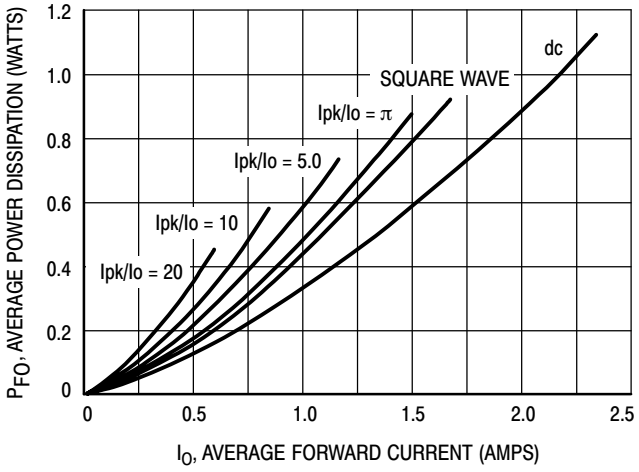

Figure 6. Forward Power Dissipation

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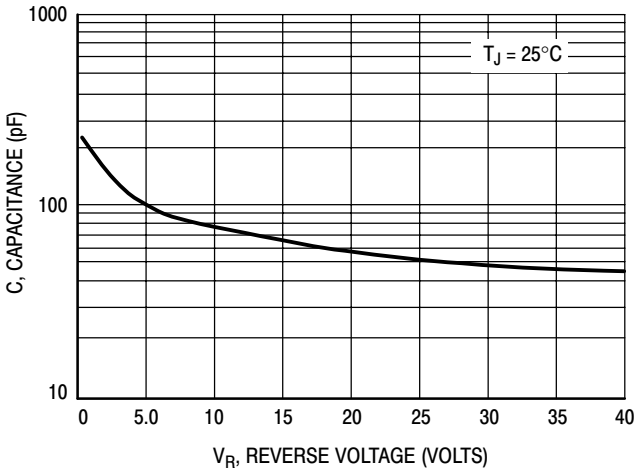

Figure 7. Capacitance

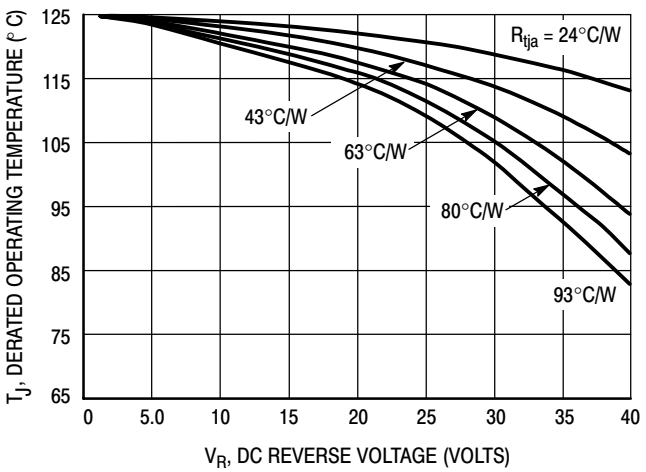

Figure 8. Typical Operating Temperature Derating*

* Reverse power dissipation and the possibility of thermal runaway must be considered when operating this device under any reverse voltage conditions. Calculations of T_J therefore must include forward and reverse power effects. The allowable operating T_J may be calculated from the equation: $T_J = T_{Jmax} - r(t)(Pf + Pr)$ where

r(t) = thermal impedance under given conditions,
Pf = forward power dissipation, and
Pr = reverse power dissipation

This graph displays the derated allowable T_J due to reverse bias under DC conditions only and is calculated as $T_J = T_{Jmax} - r(t)Pr$, where r(t) = Rthja. For other power applications further calculations must be performed.

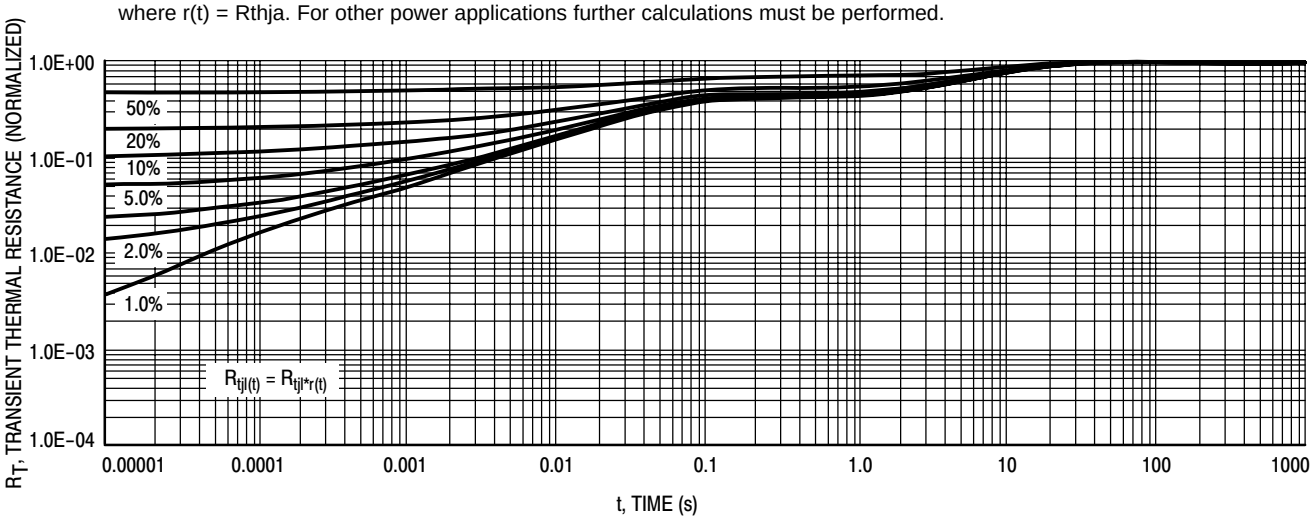

Figure 9. Thermal Response — Junction to Case

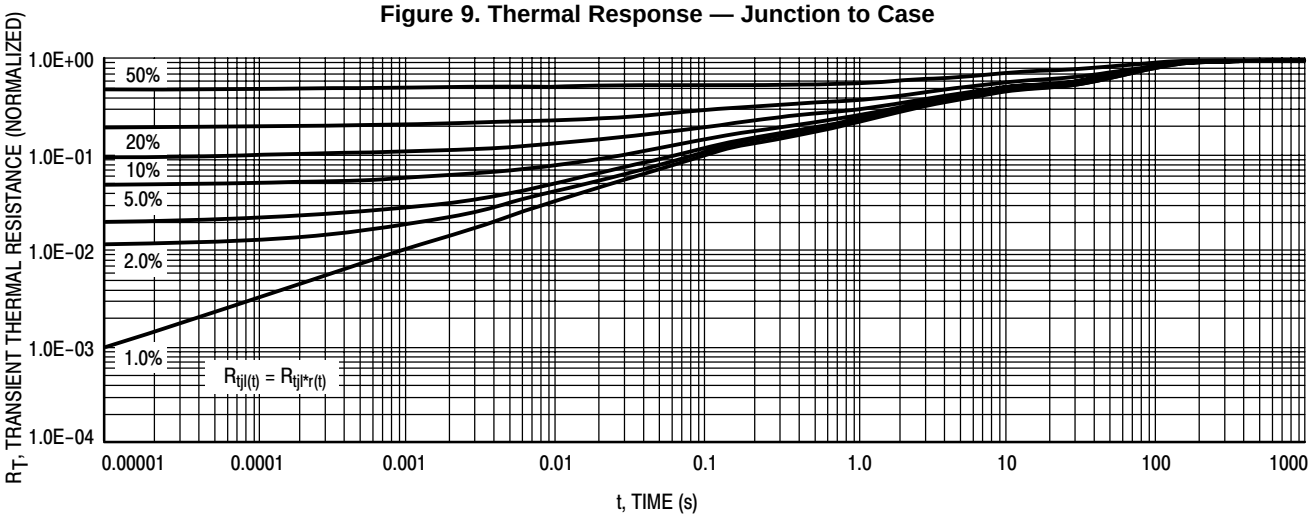

Figure 10. Thermal Response — Junction to Ambient

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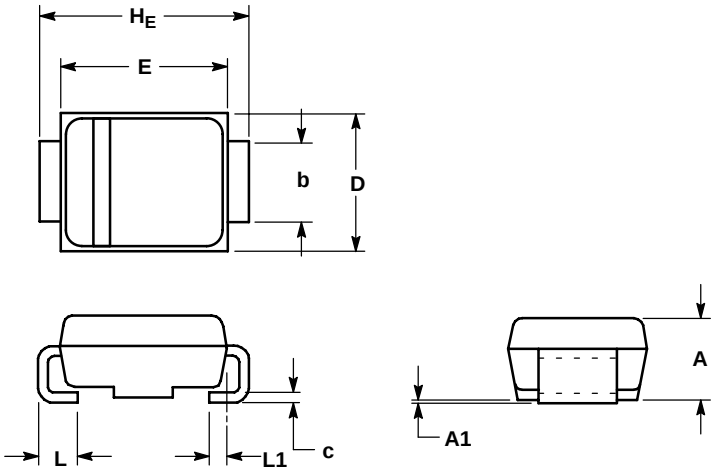
PACKAGE DIMENSIONS

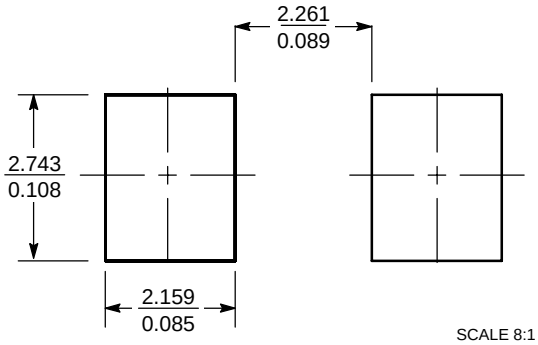
SMB
CASE 403A−03
ISSUE E



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	1.90	2.13	2.41	0.075	0.084	0.095
A1	0.05	0.10	0.15	0.002	0.004	0.006
b	1.96	2.03	2.11	0.077	0.080	0.083
c	0.15	0.23	0.30	0.006	0.009	0.012
D	3.30	3.56	3.81	0.130	0.140	0.150
E	4.06	4.32	4.57	0.160	0.170	0.180
H_E	5.21	5.44	5.59	0.205	0.214	0.220
L	0.76	1.02	1.27	0.030	0.040	0.050
L1	0.51 REF			0.020 REF		

SOLDERING FOOTPRINT*



SCALE 8:1 $\left(\frac{\text{mm}}{\text{inches}}\right)$

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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