

# DA121TT1

Preferred Device

## Silicon Switching Diode

### Features

- Pb-Free Package is Available

### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

Rating	Symbol	Max	Unit
Continuous Reverse Voltage	$V_R$	80	V
Recurrent Peak Forward Current	$I_F$	200	mA
Peak Forward Surge Current Pulse Width = 10 $\mu\text{s}$	$I_{FM(\text{surge})}$	500	mA

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation, FR-4 Board (Note 1) $T_A = 25^\circ\text{C}$ Derated above $25^\circ\text{C}$	$P_D$	225	mW
		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	555	$^\circ\text{C/W}$
Total Device Dissipation, FR-4 Board (Note 2) $T_A = 25^\circ\text{C}$ Derated above $25^\circ\text{C}$	$P_D$	360	mW
		2.9	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	345	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

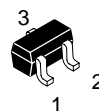
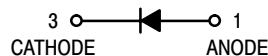
1. FR-4 @ Minimum Pad

2. FR-4 @  $1.0 \times 1.0$  Inch Pad



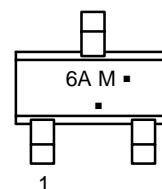
ON Semiconductor®

<http://onsemi.com>



SOT-416 / SC-75  
CASE 463  
STYLE 2

### MARKING DIAGRAM



6A = Specific Device Code

M = Date Code\*

■ = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation and/or orientation may vary depending upon manufacturing location.

### ORDERING INFORMATION

Device	Package	Shipping†
DA121TT1	SOT-416	3000 / Tape & Reel
DA121TT1G	SOT-416 (Pb-Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

Preferred devices are recommended choices for future use and best overall value.

# DA121TT1

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
Forward Voltage – ( $I_F = 1.0\text{ mA}$ ) ( $I_F = 10\text{ mA}$ ) ( $I_F = 50\text{ mA}$ ) ( $I_F = 150\text{ mA}$ )	$V_F$	– – – –	715 866 1000 1250	mV
Reverse Current – ( $V_R = 75\text{ V}$ ) ( $V_R = 75\text{ V}$ , $T_J = 150^\circ\text{C}$ ) ( $V_R = 25\text{ V}$ , $T_J = 150^\circ\text{C}$ )	$I_R$	– – –	1.0 50 30	$\mu\text{A}$
Capacitance – ( $V_R = 0$ , $f = 1.0\text{ MHz}$ )	$C_D$	–	2.0	pF
Reverse Recovery Time – ( $I_F = I_R = 10\text{ mA}$ , $R_L = 50\ \Omega$ ) (Figure 1)	$t_{rr}$	–	6.0	ns
Stored Charge – ( $I_F = 10\text{ mA}$ to $V_R = 6.0\text{ V}$ , $R_L = 500\ \Omega$ ) (Figure 2)	QS	–	45	PC
Forward Recovery Voltage – ( $I_F = 10\text{ mA}$ , $t_r = 20\text{ ns}$ ) (Figure 3)	$V_{FR}$	–	1.75	V

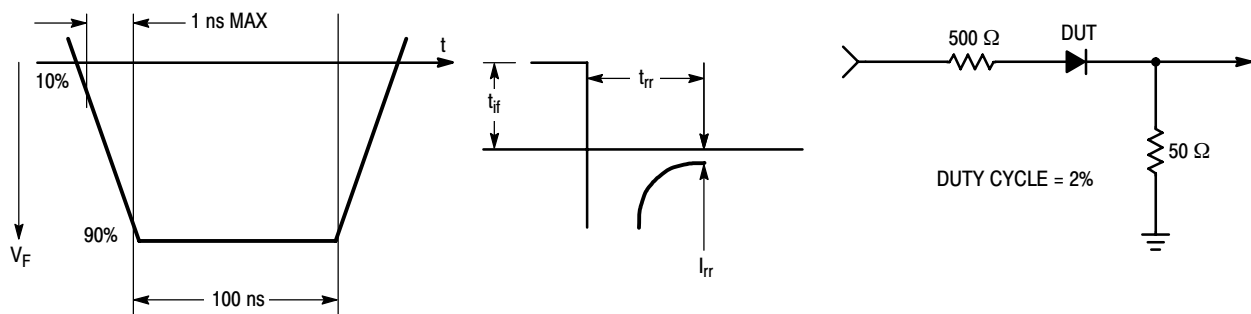


Figure 1. Reverse Recovery Time Equivalent Test Circuit

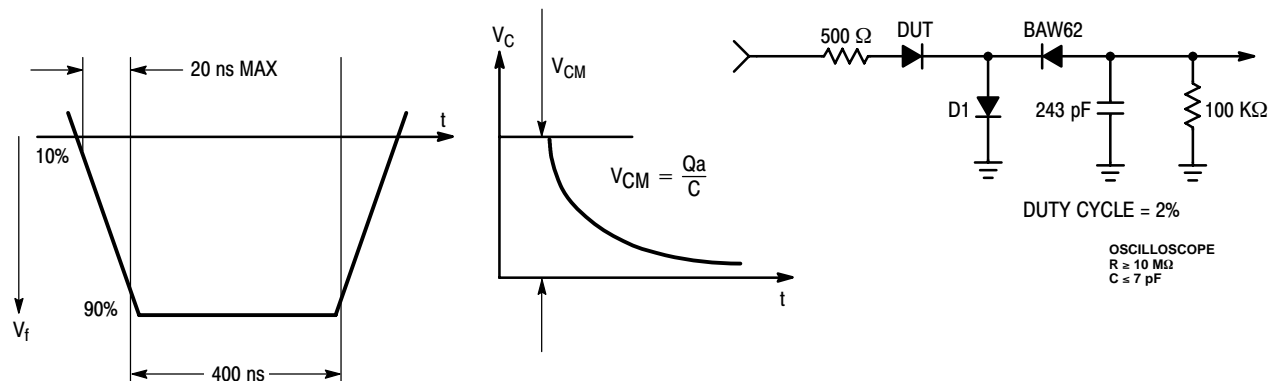


Figure 2. Recovery Charge Equivalent Test Circuit

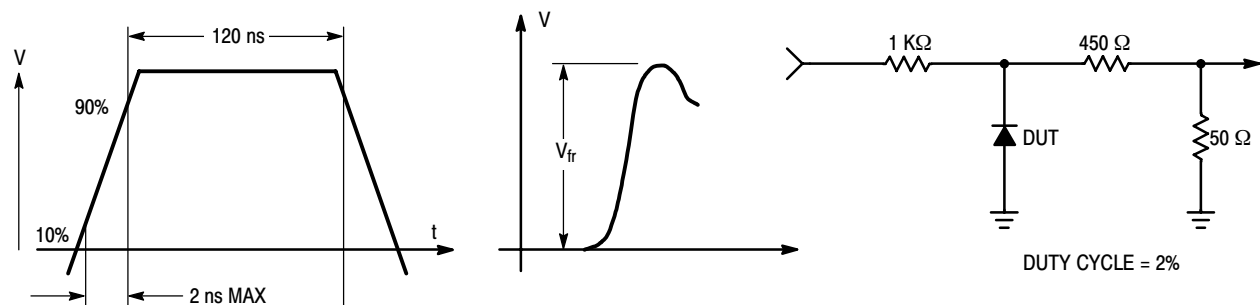


Figure 3. Forward Recovery Voltage Equivalent Test Circuit

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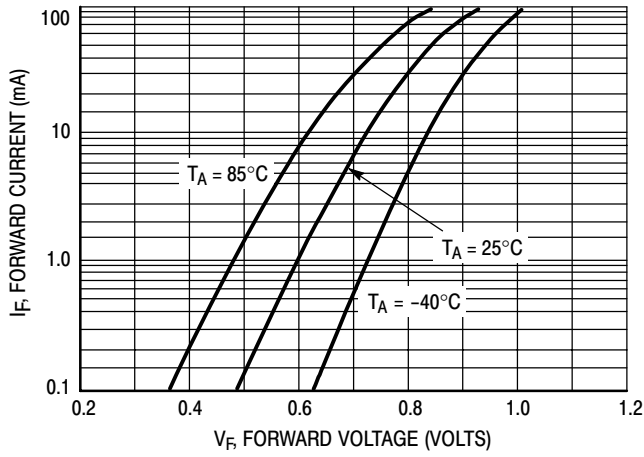


Figure 4. Forward Voltage

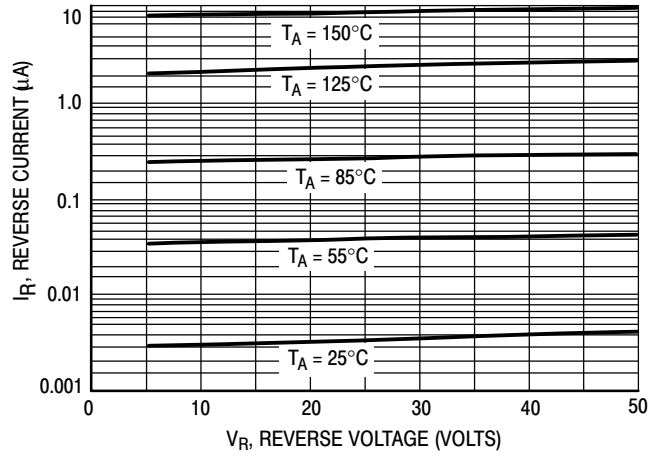


Figure 5. Leakage Current

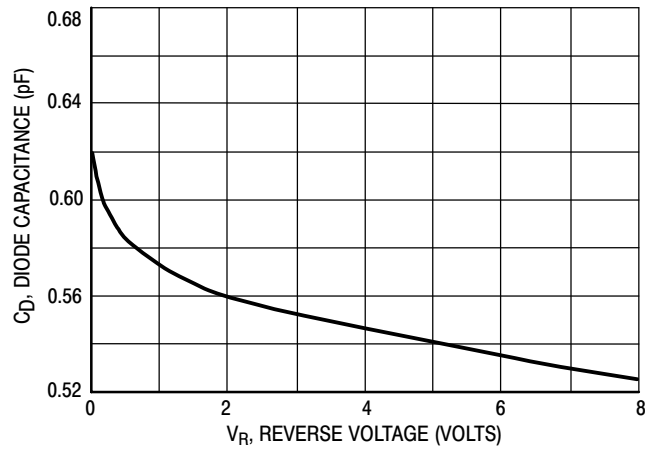


Figure 6. Capacitance

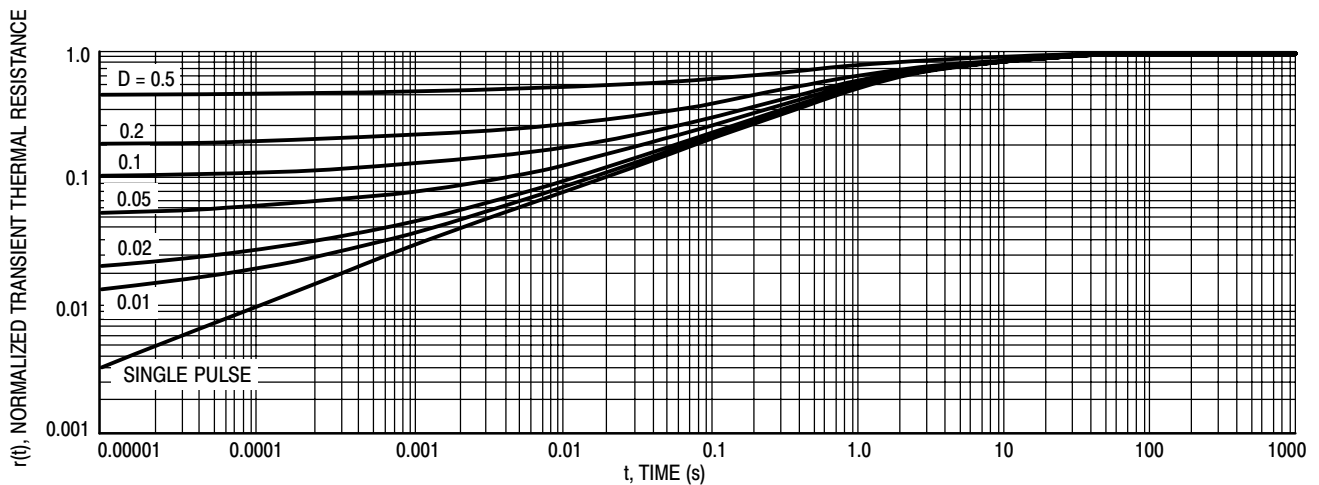
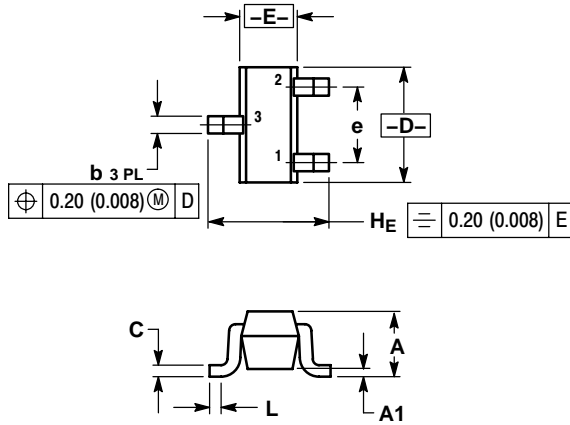


Figure 7. Normalized Thermal Response

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## PACKAGE DIMENSIONS

SC-75 (SOT-416)  
CASE 463-01  
ISSUE F

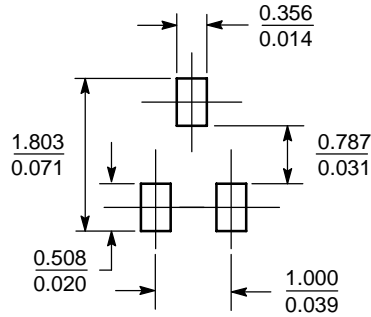


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: MILLIMETER.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.80	0.90	0.027	0.031	0.035
A1	0.00	0.05	0.10	0.000	0.002	0.004
b	0.15	0.20	0.30	0.006	0.008	0.012
C	0.10	0.15	0.25	0.004	0.006	0.010
D	1.55	1.60	1.65	0.059	0.063	0.067
E	0.70	0.80	0.90	0.027	0.031	0.035
e	1.00 BSC			0.04 BSC		
L	0.10	0.15	0.20	0.004	0.006	0.008
H <sub>E</sub>	1.50	1.60	1.70	0.061	0.063	0.065


- STYLE 2:
- PIN 1. ANODE
  - N/C
  - CATHODE

## SOLDERING FOOTPRINT\*



SCALE 10:1 (mm / inches)

\*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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