



# CM1218

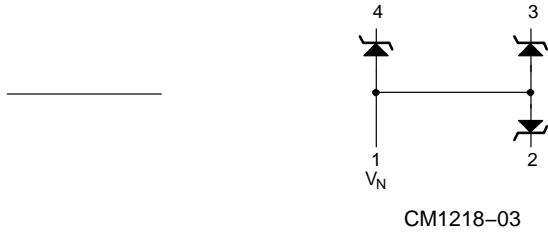
---

## Low Capacitance Transient Voltage Suppressors / ESD Protectors

### Description

The CM1218 family of devices features transient voltage suppressor

# CM1218



Specifications

Table 1. ABSOLUTE MAXIMUM RATINGS

Parameter	Rating	Units
Storage Temperature Range	-65 to +150	°C
Package Power Dissipation SC70 SOT23-3, SOT23-5, SOT23-6, SOT143 SOT-553, SOT-563	0.2 0.225 0.15	W

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.

Table 2. STANDARD OPERATING CONDITIONS

Parameter	Rating	Units
Operating Temperature	-40 to +85	°C

Table 3. ELECTRICAL OPERATING CHARACTERISTICS (Note 1)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
C <sub>IN</sub>	Channel Input Capacitance	T <sub>A</sub> = 25°C, 2.5 VDC, 1 MHz		7		pF
ΔC <sub>IN</sub>	Differential Channel I/O to GND Capacitance	T <sub>A</sub> = 25°C, 2.5 VDC, 1 MHz		0.19		pF
V <sub>RSO</sub>	Reverse Stand-off Voltage	I <sub>R</sub> = 10 μA, T <sub>A</sub> = 25°C	5.5			V
		I <sub>R</sub> = 1 mA, T <sub>A</sub> = 25°C	6.1			V
I <sub>LEAK</sub>	Leakage Current	V <sub>IN</sub> = 5.0 VDC, T <sub>A</sub> = 25°C			1	μA
V <sub>SIG</sub>	Small Signal Clamp Voltage Positive Clamp Negative Clamp	I = 10 mA, T <sub>A</sub> = 25°C		6.8		V
		I = -10 mA, T <sub>A</sub> = 25°C		-0.8		V
V <sub>ESD</sub>	ESD Withstand Voltage Contact Discharge per IEC 61000-4-2 standard Human Body Model, MIL-STD-883, Method 3015	T <sub>A</sub> = 25°C; Notes 3 & 4	±15			kV
		T <sub>A</sub> = 25°C; Notes 2 & 4	±30			kV
R <sub>D</sub>	Diode Dynamic Resistance Forward Conduction Reverse Conduction	T <sub>A</sub> = 25°C; Note 2				Ω
				1.1		Ω
				2.7		Ω

- 1 All parameters specified at T<sub>A</sub> = -40°C to +85°C unless otherwise noted.
- 2 Human Body Model per MIL-STD-883, Method 3015, C<sub>Discharge</sub> = 100 pF, R<sub>Discharge</sub> = 1.5 KΩ, V<sub>N</sub> grounded.
- 3 Standard IEC 61000-4-2 with C<sub>Discharge</sub> = 150 pF, R<sub>Discharge</sub> = 330 Ω, V<sub>N</sub> grounded.
- 4 These measurements performed with no external capacitor on CH<sub>X</sub>.

Performance Information

**Diode Capacitance**

Typical diode capacitance with respect to positive TVS cathode voltage (reverse voltage across the diode) is given in Figure 1. Diode Capacitance vs. Reverse Voltage.

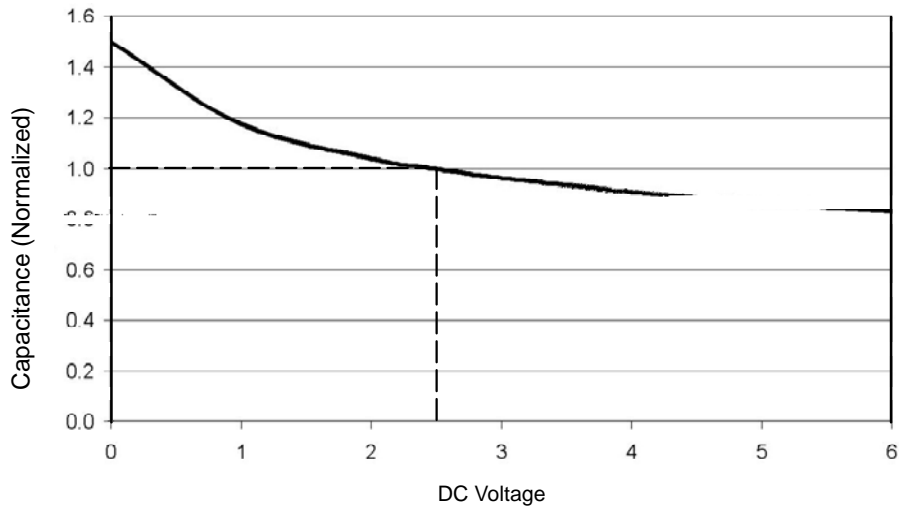


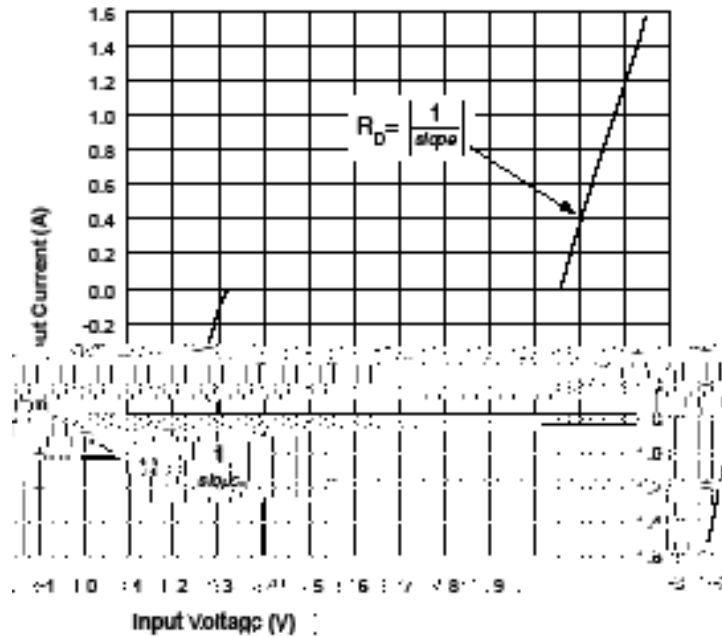
Figure 1. Diode Capacitance vs. Reverse Voltage

**Typical High Current Diode Characteristics**

Measurements are made in pulsed mode with a nominal pulse width of 0.7 ms.

**Typical Input VI Characteristics**

(Pulse-mode measurements, pulse width = 0.7ms nominal)



# CM1218

## Mechanical Details

The CM1218 devices are supplied in the following packages: SOT23-3, SOT23-5, SOT23-6, SOT143, SOT553, SOT563, SC70-3, SC70-5, and SC70-6.

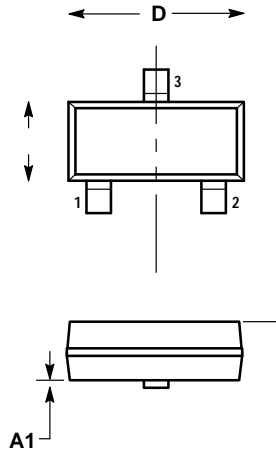
**Table 4. TAPE AND REEL SPECIFICATIONS**

Part Number	Package	Package Size (mm)	Pocket Size (mm) B <sub>0</sub> X A <sub>0</sub> X K <sub>0</sub>	Tape Width W	Reel Diameter	Qty per Reel	P <sub>0</sub>	P <sub>1</sub>
CM1218-02SO	<del>SOT23-3</del>	<del>1.92 X 2.3</del> X 1.01	2.77 X 3.15 X 1.22	8 mm	178 mm (7")	3000	4 mm	4 mm

# CM1218

## PACKAGE DIMENSIONS

SOT-23 3-Lead (TO-236AA)  
CASE 419AH-01  
ISSUE O



### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE. DIMENSIONS D AND E1 ARE DETERMINED AT DATUM H.
5. PIN ONE INDICATOR MUST BE LOCATED IN THE INDICATED ZONE.

---

---

---

---

---

---



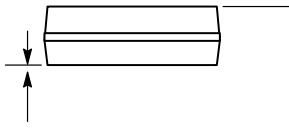
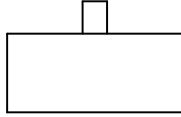


# CM1218

## PACKAGE DIMENSIONS

SOT-23, 6 Lead  
CASE 527AJ-01  
ISSUE A

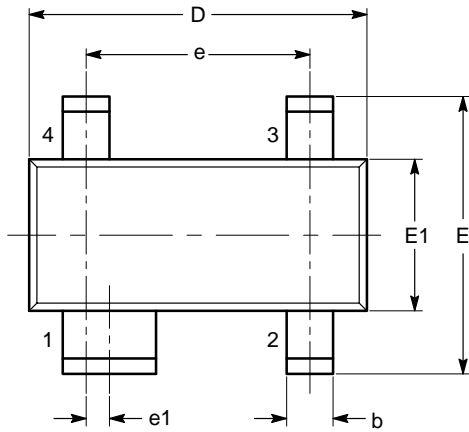
D



# CM1218

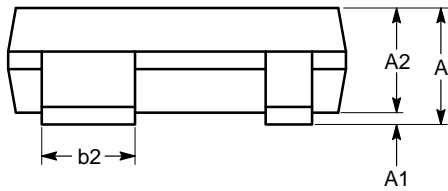
## PACKAGE DIMENSIONS

SOT-143, 4 Lead  
CASE 527AF-01  
ISSUE A

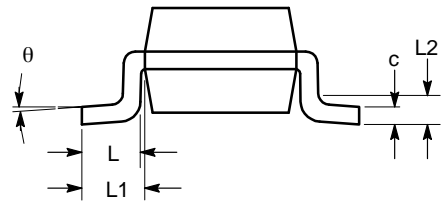


TOP VIEW

SYMBOL	MIN	NOM	MAX
A	0.80		1.22
A1	0.05		0.15
A2	0.75	0.90	1.07
b	0.30		0.50
b2	0.76		0.89
c	0.08		0.20
D	2.80	2.90	3.04
E	2.10		2.64
E1	1.20	1.30	1.40
e	1.92 BSC		
e1	0.20 BSC		
L	0.40	0.50	0.60
L1	0.54 REF		
L2		0.25	
	0°		8°



SIDE VIEW



END VIEW

**Notes:**

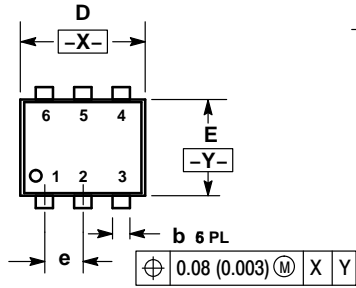
- (1) All dimensions are in millimeters. Angles in degrees.
- (2) Complies with JEDEC TO-253.



# CM1218

## PACKAGE DIMENSIONS

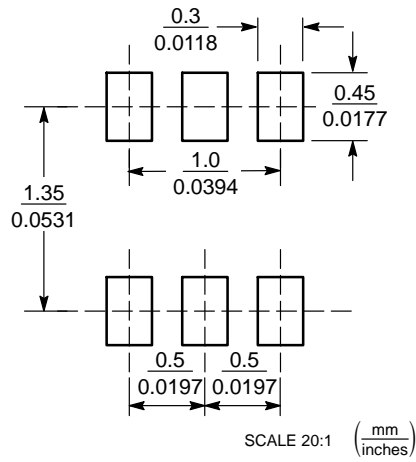
SOT-563, 6 LEAD  
CASE 463A-01  
ISSUE F



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.55	0.60	0.020	0.021	0.023
b	0.17	0.22	0.27	0.007	0.009	0.011
C						
D	1.50	1.60	1.70	0.059	0.062	0.066
E	1.10	1.20	1.30	0.043	0.047	0.051
e	0.5 BSC			0.02 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
H <sub>F</sub>	1.50	1.60	1.70	0.059	0.062	0.066

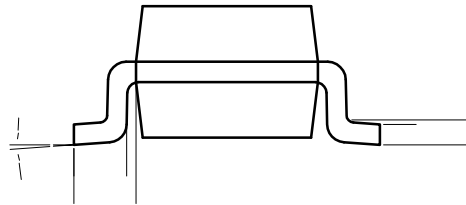
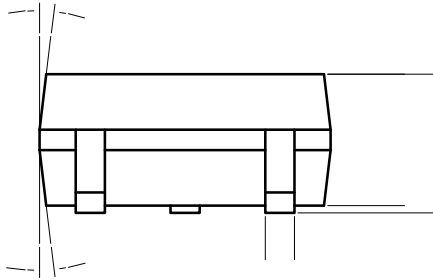
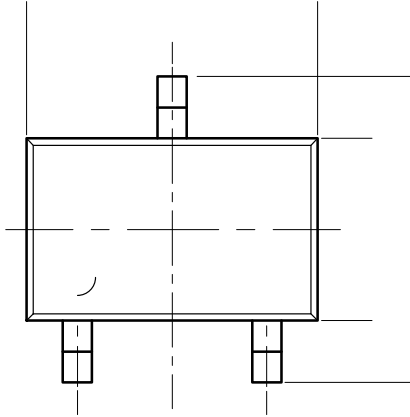


\*For

# CM1218

## PACKAGE DIMENSIONS

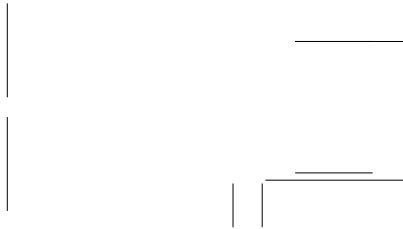
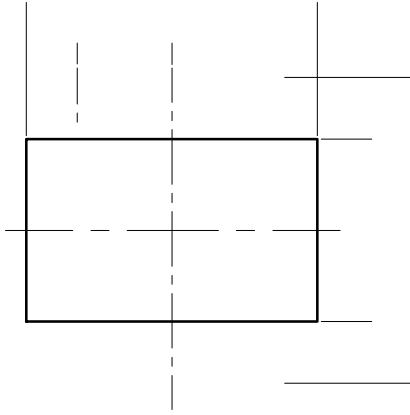
SC-70, 3 Lead, 1.25x2  
CASE 419AB-01  
ISSUE O



# CM1218

## PACKAGE DIMENSIONS

SC-88A (SC-70 5 Lead), 1.25x2  
CASE 419AC-01  
ISSUE A





# CM1218

## ORDERING INFORMATION

Device	Package	Shipping
CM1218-02SO	SOT23-3 (Pb-Free)	3000/Tape & Reel
CM1218-04SO	SOT23-5 (Pb-Free)	3000/Tape & Reel
CM1218-05SO	SOT23-6 (Pb-Free)	3000/Tape & Reel
CM1218-03SR	SOT-143 (Pb-Free)	3000/Tape & Reel
CM1218-04SE	SOT-553 (Pb-Free)	5000/Tape & Reel

## ORDERING INFORMATION (cont'd)

Device	Package	Shipping
CM1218-05SE	SOT563 (Pb-Free)	5000/Tape & Reel
CM1218-F4SE	SOT563 (Pb-Free)	5000/Tape & Reel
CM1218-02S7B(PbFree)	50003	Tape & Reel