Low Capacitance Transient Voltage Suppressors / ESD Protectors

Description

The CM1219 family of devices features transient voltage suppressor arrays that provide a very high level of protection for sensitive electronic components which may be subjected to electrostatic discharge (ESD).

All pins of the CM1219 are rated to withstand ± 8 kV ESD pulses using the IEC 61000–4–2 contact discharge method. Using the MIL–STD–883D (Method 3015) specification for Human Body Model (HBM) ESD, all pins are protected from contact discharges of greater than ± 15 kV.

Features

- Functionally and Pin Compatible with CMD's PACDN1408 ESD Protection Device
- Low I/O Capacitance at 4 pF Typical
- In-system ESD Protection to ±8 kV Contact Discharge, per the IEC 61000-4-2 International Standard
- Five Channels of ESD Protection
- Compact SMT Package Saves Board Space and Facilitates Layout in Space-critical Applications
- Each I/O Pin Can Withstand over 1000 ESD Strikes*
- These are Pb-Free Devices

Applications

- High-speed Consumer Electronic Ports
- ESD Protection of PC Ports, Including USB Ports, Serial Ports, Parallel Ports, IEEE1394 Ports, Docking Ports, Proprietary Ports, etc.
- Protection of Interface Ports or IC Pins which are Exposed to High ESD Levels



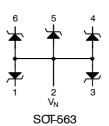
ON Semiconductor®

http://onsemi.com



SOT-563 SE SUFFIX CASE 463A

BLOCK DIAGRAM



MARKING DIAGRAM



S5R = Specific Device Code

M = Month Code ■ Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping [†]		
CM1219-05SE	SOT-563 (Pb-Free)	5000/Tape & Reel		

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

^{*}Standard test condition is IEC61000-4-2 level 4 test circuit with each pin subjected to ±8kV contact discharge for 1000 pulses. Discharges are timed at 1 second intervals and all 1000 strikes are completed in one continuous test run. The part is then subjected to standard production test to verify that all of the tested parameters are within spec after the 1000 strikes.

PACKAGE / PINOUT DIAGRAM & PIN DESCRIPTIONS

Top View 6∭СН5 S5R = Specific Device Code CHx = The Cathode of the Respective TVS Diode, which CH2 ∭ 3 4∭СН3 should be connected to the node requiring transient voltage protection 6-lead SOT-563 V_N = The Anode of the TVS Diodes

SPECIFICATIONS

Table 1. ABSOLUTE MAXIMUM RATINGS

Parameter	Rating	Units
Storage Temperature Range	−65 to +150	°C
Package Power Dissipation SOT-563	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

Symbol	Parameter	Conditions	Min	Тур	Max	Units
C _{IN}	Channel Input Capacitance	T _A = 25°C, 2.5 VDC, 1 MHz		4		pF
ΔC_{IN}	Differential Channel I/O to GND Capacitance	T _A = 25°C, 2.5 VDC, 1 MHz		0.14		pF
V _{RSO}	Reverse Stand-off Voltage	$I_R = 10 \mu A, T_A = 25^{\circ}C$	5.5	6.8	8.5	V
		I _R = 1 mA, T _A = 25°C	6.1	6.8	8.8	V
I _{LEAK}	Leakage Current	V _{IN} = 5.0 VDC, T _A = 25°C			1	μΑ
V _{SIG}	Small Signal Clamp Voltage Positive Clamp Negative Clamp	I = 10 mA, T _A = 25°C I = -10 mA, T _A = 25°C	5.5 -0.4	6.8 -0.8	9.0 -1.2	٧
V _{ESD}	ESD Withstand Voltage Contact Discharge per IEC 61000-4-2 standard Human Body Model, MIL-STD-883, Method 3015	T _A = 25°C; Notes 2 & 3 T _A = 25°C; Notes 1 & 3	±8 ±15			kV
R _D	Diode Dynamic Resistance Forward Conduction Reverse Conduction	T _A = 25°C; Note 1	0.5 1.3	0.7 1.9	0.9 2.4	Ω

¹ Human Body Model per MIL–STD–883, Method 3015, $C_{Discharge} = 100$ pF, $R_{Discharge} = 1.5$ K Ω , V_N grounded. 2 Standard IEC 61000–4–2 with $C_{Discharge} = 150$ pF, $R_{Discharge} = 330$ Ω , V_N grounded. 3 These measurements performed with no external capacitor on CH_X .

PERFORMANCE INFORMATION

Diode Capacitance

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

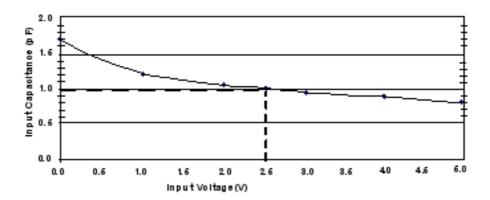


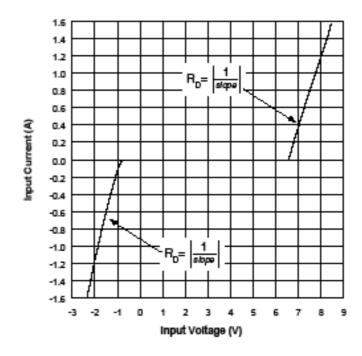
Figure 1. Diode Capacitance vs. Reverse Voltage

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)

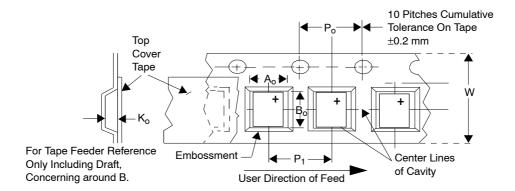


MECHANICAL SPECIFICATIONS

The CM1219-05SE is supplied in a 5-pin SOT-563 package. Dimensions are presented below.

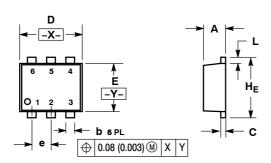
Table 4. CSP TAPE AND REEL SPECIFICATIONS

Part Number	Chip Size (mm)	Pocket Size (mm) Tape Width B ₀ X A ₀ X K ₀ W		Reel Diameter	Qty per el Diameter Reel		P ₁
CM1219	1.60 X 1.60 X 0.55	1.78 X 1.78 X 0.69	8 mm	178 mm (7")	5000	4 mm	4 mm

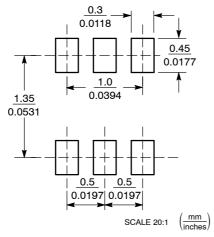


PACKAGE DIMENSIONS

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



SOLDERING FOOTPRINT*



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

NOTES

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

	MILLIMETERS			INCHES			
DIM	MIN	NOM	MAX	MIN NOM		MAX	
Α	0.50	0.55	0.60	0.020	0.020 0.021		
b	0.17	0.22	0.27	0.007	0.009	0.011	
С	0.08	0.12	0.18	0.003	0.005	0.007	
D	1.50	1.60	1.70	0.059	0.062	0.066	
Е	1.10	1.20	1.30	0.043	0.047	0.051	
е		0.5 BSC)	C	0.02 BS0		
L	0.10	0.20	0.30	0.004	0.008	0.012	
He	1.50	1.60	1.70	0.059	0.062	0.066	

STYLE 6:

PIN 1. CATHODE

- 2. ANODE
- 3. CATHODE 4. CATHODE
- CATHODE
- 6. CATHODE

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