

# CM6110

## Single-Channel Transient Voltage Suppressor

### Product Description

The CM6110 is an *Application Specific Integrated Passive™* (ASIP™) component in a 2x2, 4-bump, 0.4 mm pitch, CSP form factor. This device is designed for:

- Transient Voltage Suppression
- Electrostatic Discharge Protection
- Electrical Overstress Protection

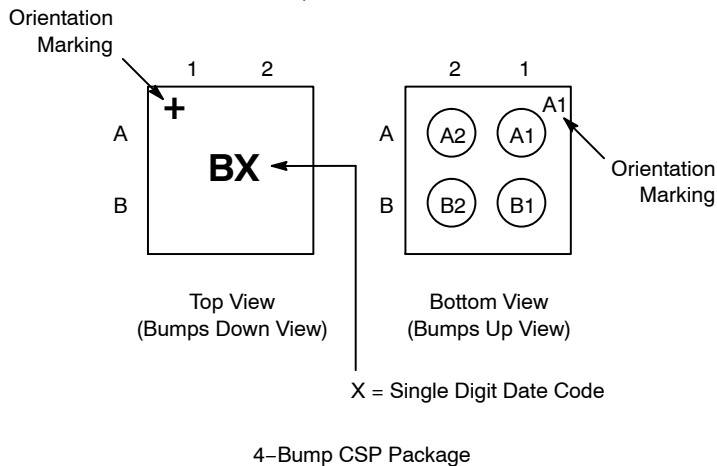
### Features

- 4-Bump, 0.8 mm x 0.8 mm Footprint Chip Scale Package (CSP)
- These Devices are Pb-Free and are RoHS Compliant

**Table 1. PIN DESCRIPTIONS**

4-bump CSP Package	
Pin	Description
A1 and A2	TVS Channel
B1 and B2	Device Ground

### PACKAGE / PINOUT DIAGRAMS



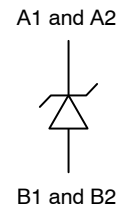
**ON Semiconductor®**

<http://onsemi.com>



**WLCSP4  
CASE 567CB**

### ELECTRICAL SCHEMATIC



### MARKING DIAGRAM



B = Specific Device code  
X = Single Digit Date Code

### ORDERING INFORMATION

Device	Package	Shipping†
CM6110	WLCSP4 (Pb-Free)	10,000/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.

# CM6110

## ELECTRICAL SPECIFICATIONS AND CONDITIONS

**Table 2. PARAMETERS AND OPERATING CONDITIONS**

Parameter	Rating	Units
Storage Temperature Range	-55 to +150	°C
Operating Temperature Range	-30 to +85	°C

**Table 3. ABSOLUTE RATINGS**

Parameter	Rating	Units
Failing to nonconductive, $I^2t$ (Maximum $I_{PP}$ value using 10/1000 $\mu$ s pulse). (Notes 1 and 2)	100	A

1. The device must not burn to open-circuit, when the value is below maximum  $I_{PP}$ .
2. This parameter is characterized at 25°C using an ON Semiconductor-specific test board.

**Table 4. ELECTRICAL OPERATING CHARACTERISTICS** (Note 3)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
$I_{OFF}$	Stand-off quiescent current	Stand-off voltage $V_{OFF} = 8$ V			800	nA
$V_{BR}$	Break down voltage	Break down current $I_{BR} = 15$ mA	10			V
$V_{CL}$	Clamping voltage during transient	Clamping current $I_{CL} = 1$ A (Notes 4 and 6)			13	V
$V_F$	Forward voltage	Forward current $I_F = 850$ mA (Note 4)			1.1	V
$C_{L1}$	Line capacitance	$V_{BIAS} = 0$ V (Note 4)		310		pF
$C_{L2}$		$V_{BIAS} = 5$ V; $T_A = 25^\circ$ C	124	155		pF
$V_{ESD}$	ESD Protection Peak Discharge Voltage at any channel input a) Contact Discharge per IEC 61000-4-2 standard b) Air Discharge per IEC 61000-4-2 standard	$T_A = 25^\circ$ C (Notes 4 and 5)	$\pm 30$ $\pm 30$			kV
	Minimum Attenuation Freq = 80 MHz – 1 GHz Freq = 1 – 4 GHz	$R_{SOURCE} = R_{LOAD} = 50$ $\Omega$ $T_A = 25^\circ$ C (Note 4)		12 20		dB

3. All parameters specified for  $T_A = -30^\circ$ C to  $85^\circ$ C unless otherwise noted.
4. These parameters guaranteed by design and characterization.
5. Standard IEC 61000-4-2 with  $C_{Discharge} = 150$  pF,  $R_{Discharge} = 330$   $\Omega$ .
6. Transient: 8 x 20  $\mu$ s current pulse.

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## RF CHARACTERISTICS

$T_A = 25^\circ\text{C}$ ,  $50\ \Omega$  Environment

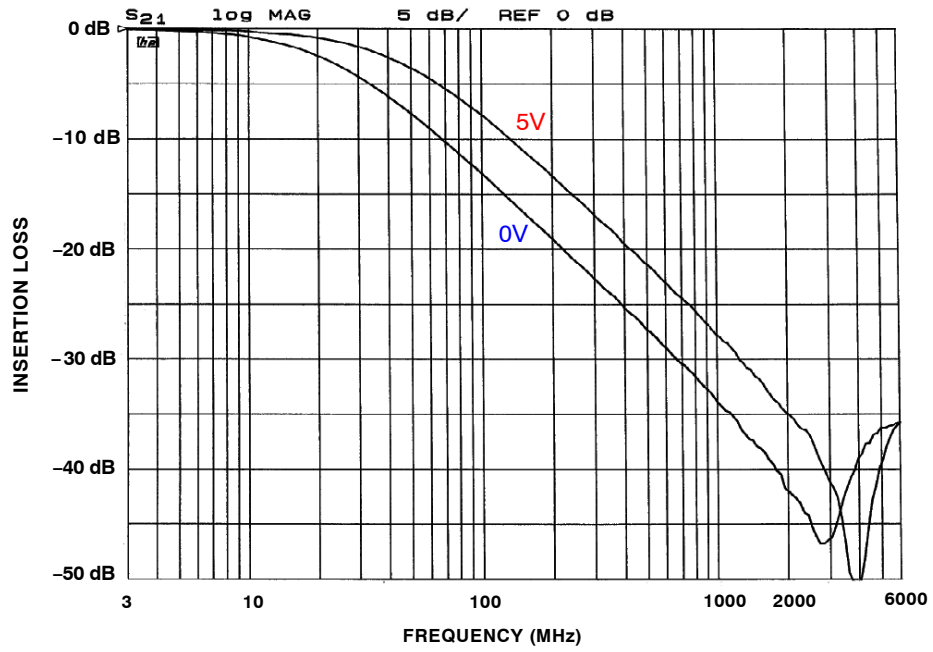
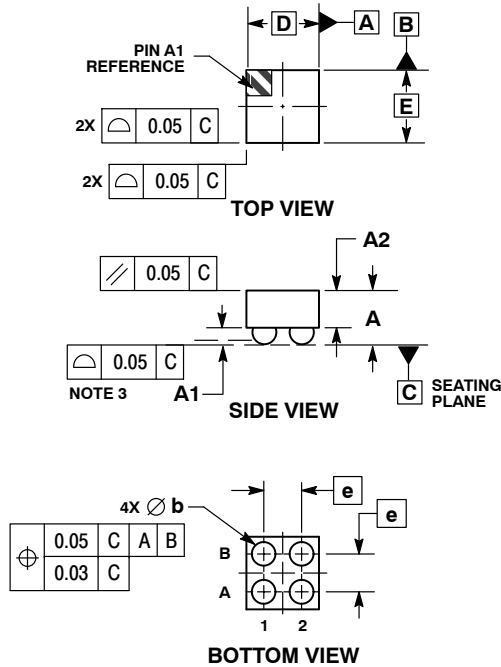


Figure 1. Insertion Loss (0 V and 5 V Bias)

# CM6110

## PACKAGE DIMENSIONS

WLCSP4, 0.8x0.8  
CASE 567CB-01  
ISSUE O

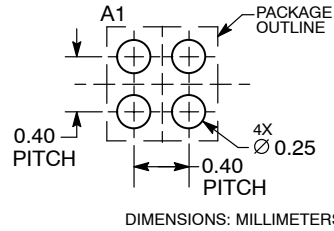


**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. COPLANARITY APPLIES TO SPHERICAL CROWNS OF SOLDER BALLS.

DIM	MILLIMETERS	
	MIN	MAX
A	0.57	0.63
A1	0.17	0.24
A2	0.41 REF	
b	0.24	0.29
D	0.80 BSC	
E	0.80 BSC	
e	0.40 BSC	

**RECOMMENDED 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.

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