

## Description

The DCSCM07 is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast re-sponse time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensi-tive data and power line. The DCSCM07 complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into an ultra-small SOT-23 lead-free package. The small size and high ESD surge protection make DCSCM07 an ideal choice to pro-tect cell phone, digital cameras, audio players and many other portable applications.

## Mechanical Characteristics

- ◆ Package: SOT-23
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: "Green" Molding Compound.
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

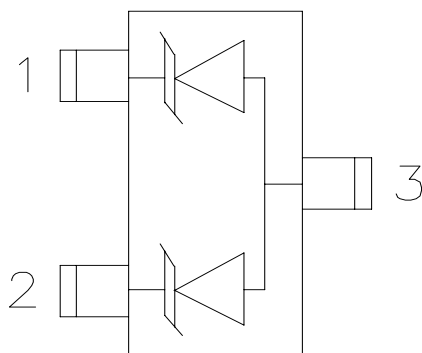
## Features

- ◆ 300W peak pulse power(8/20 $\mu\text{s}$ )
- ◆ Protects one two uni-directional line(s)
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 7V
- ◆ Low clamping voltage
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lighting) 18A (8/20 $\mu\text{s}$ )
- ◆ RoHS Compliant

## Applications

- ◆ Peripherals
- ◆ Industrial Equipment
- ◆ Notebook Computers
- ◆ Portable Instrumentation
- ◆ Microprocessor Based Equipment
- ◆ Cell Phone Handsets and Accessories
- ◆ Personal Digital Assistants(PDAs) and Pagers

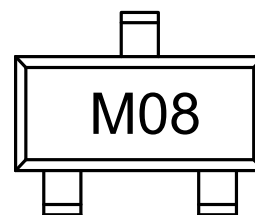
## Dimensions and Pin Configuration



**SOT23**

Circuit and Pin Schematic

## Marking Information



M08 = Device Marking Code

## Ordering Information

Part Number	Marking	Packaging	Reel Size
DCSCM07	M08	3000/Tape & Reel	7 inch

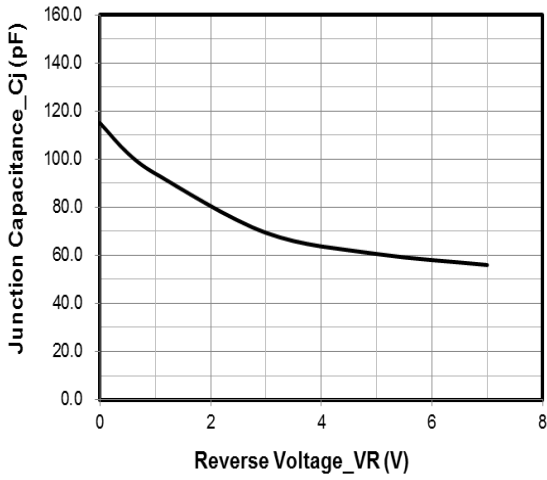
### Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	250	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	Ipp	18	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

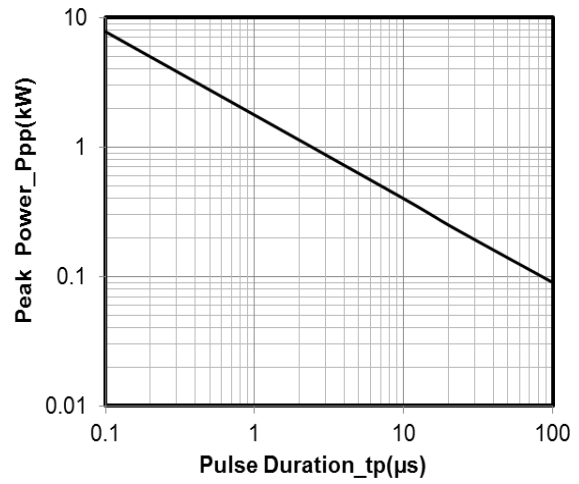
### Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			7	V	
Breakdown Voltage	VBR	7.5			V	IT = 1mA
Reverse Leakage Current	IR			0.2	$\mu\text{A}$	VRWM = 7V
Forward Voltage	VF			1.2	V	IF = 10mA
Clamping Voltage	VC			10	V	I <sub>PP</sub> = 5A (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	VC			14	V	I <sub>PP</sub> = 18A (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	CJ			160	pF	VR = 0V, f = 1MHz

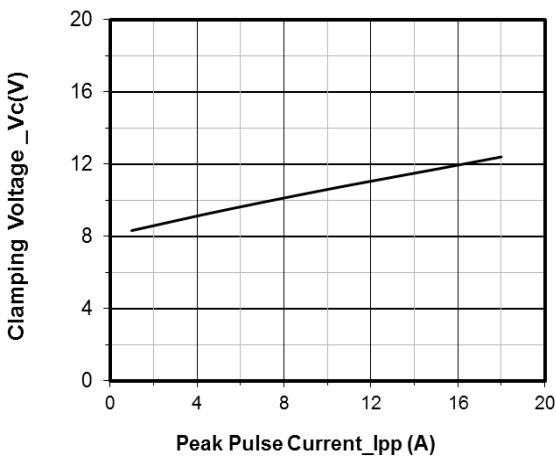
**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



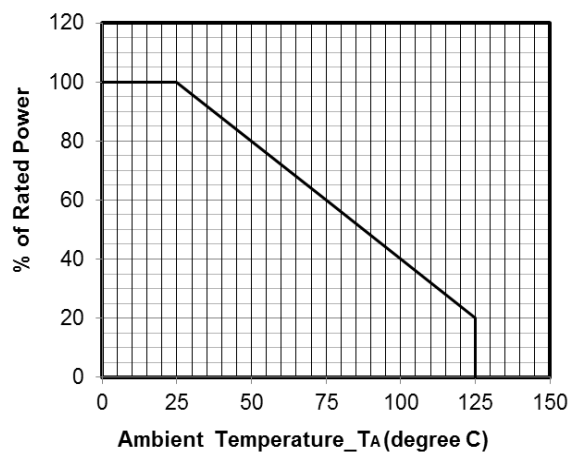
**Junction Capacitance vs. Reverse Voltage**



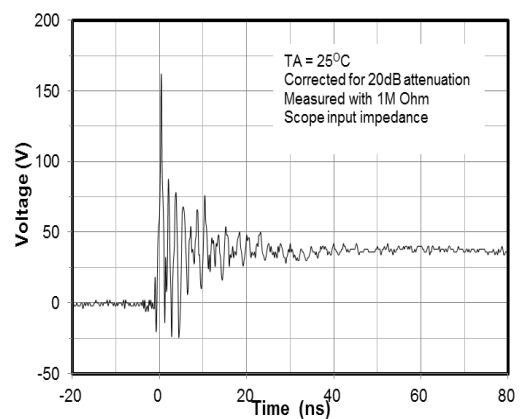
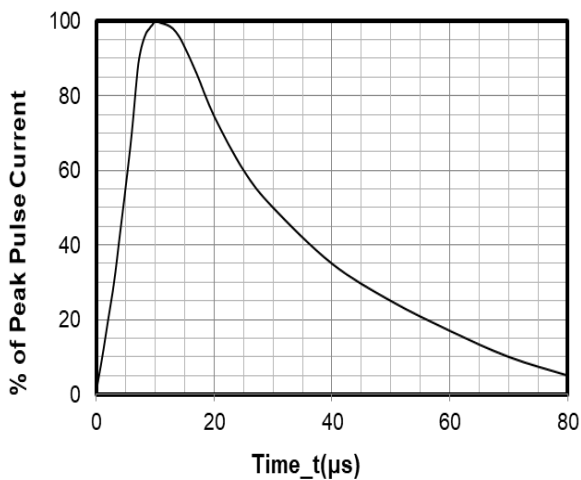
**Peak Pulse Power vs. Pulse Time**



**Clamping Voltage vs. Peak Pulse Current**

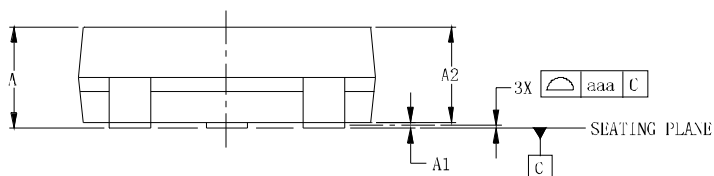
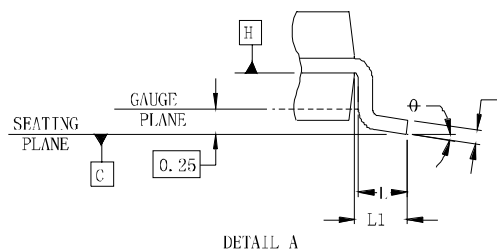
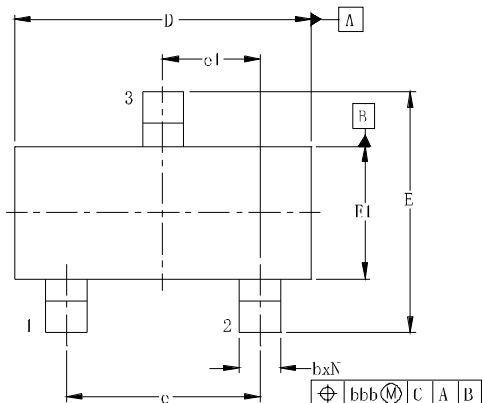


**Power Derating Curve**

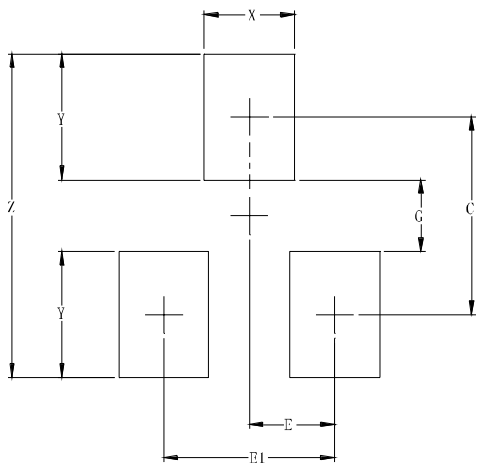


**ESD Clamping Voltage  
8 kV Contact per IEC61000-4-2**

## SOT-23 Package Outline Drawing



## Suggested Land Pattern



DIMENSIONS						
SYM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.035	-	0.044	0.89	-	1.12
A1	0.000	-	0.004	0.01	-	0.10
A2	0.035	0.037	0.040	0.88	0.95	1.02
b	0.012	-	0.020	0.30	-	0.51
c	0.003	-	0.007	0.08	-	0.18
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075			1.90BSC		
e1	0.037			0.95BSC		
L	0.015	0.020	0.024	0.40	0.50	0.60
L1	0.022			0.55		
N	3			3		
ϕ	0°	-	8°	0°	-	8°
aaa	0.004			0.10		
bbb	0.008			0.20		

DIMENSIONS		
SYM	INCHES	MILLIMETERS
C	0.087	2.20
E	0.037	0.95
E1	0.075	1.90
G	0.031	0.80
X	0.039	1.00
Y	0.055	1.40
Z	0.141	3.60

## Contact Information

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