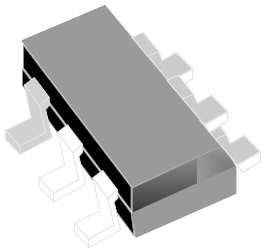
DW05MSC-S

Features

- Solid-state silicon-avalanche technology
- 250 Watts Peak Pulse Power per Line (t_p=8/20μs)
- Low operating and clamping voltages
- Protects five I/O lines
- Working Voltage: 5 V
- Low Leakage



SOT-23-6

IEC Compatibility (EN61000-4)

- IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 14A (8/20μs)

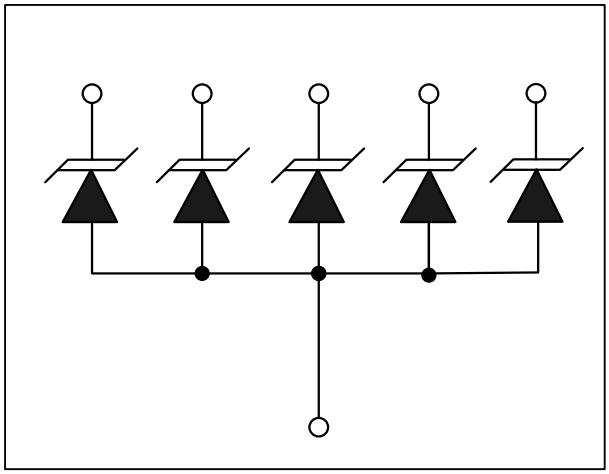
Mechanical Characteristics

- SOT-23-6 package
- Molding compound flammability rating: UL 94V-0
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS Compliant

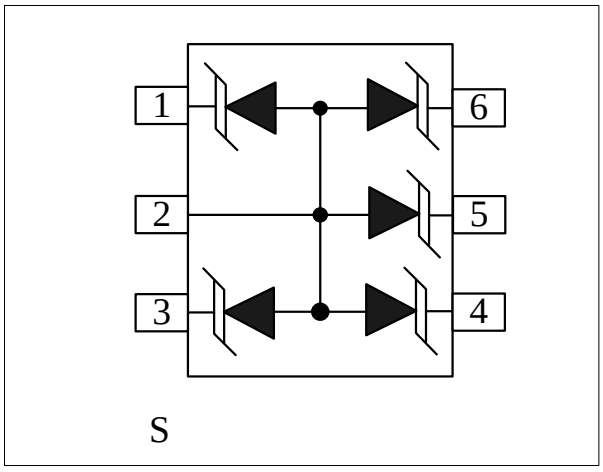
Applications

- Cell phone Handsets & Accessories
- Personal Digital Assistants (PDAs)
- Notebook, Laptop, and Palmtop Computers
- Portable Instrumentation
- Digital Cameras
- MP3 Player

Circuit Diagram



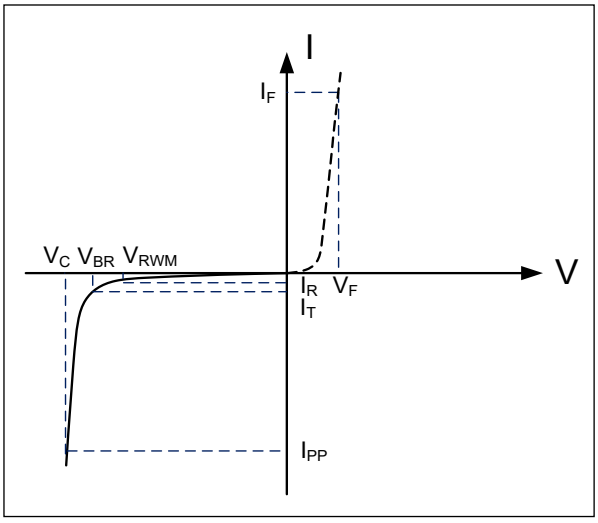
Schematic & PIN Configuration



Absolute Maximum Rating			
Rating	**Symbol**	**Value**	**Units**
Peak Pulse Power（t_p =8/20μs）	P_{PP}	250	Watts
Peak Forward Voltage (I_F = 1A, t_p=8/20μs)	V_{FP}	1.5	V
Operating Temperature	T_J	-55 to + 125	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Electrical Parameters (T=25℃)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical Characteristics

DW05MSC-S						
Parameter	**Symbol**	**Conditions**	**Minimum**	**Typical**	**Maximum**	**Units**
Reverse Stand-Off Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	6.0			V
Reverse Leakage Current	I_R	V_{RWM}=5V,T=25℃			0.5	μA
Peak Pulse Current	I_{PP}	t_p =8/20μs			14	A
Clamping Voltage	V_C	I_{PP}=1A, t_p=8/20μs			9.5	V
Clamping Voltage	V_C	I_{PP}=14A, t_p=8/20μs		15	17	V
Junction Capacitance	C_j	Between I/O pins and Ground V_R = 0V, f = 1MHz		90	100	pF

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

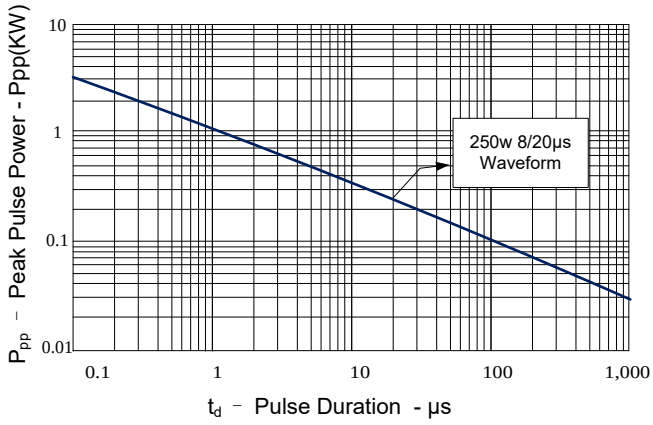


Figure 2: Power Derating Curve

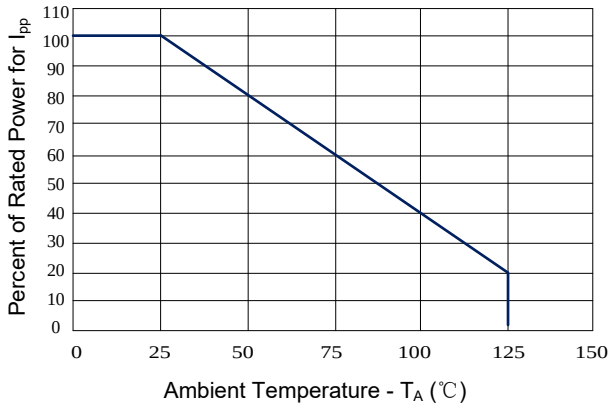


Figure 3: Clamping Voltage vs. Peak Pulse Current

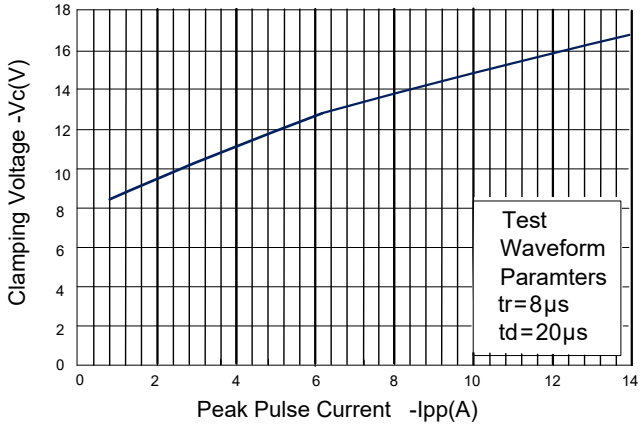


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

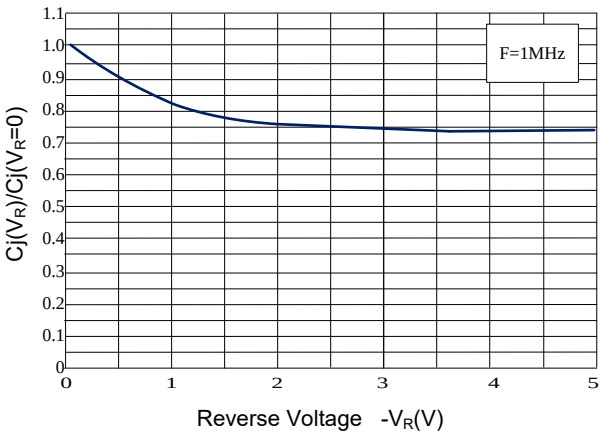


Figure 5: Pulse Waveform

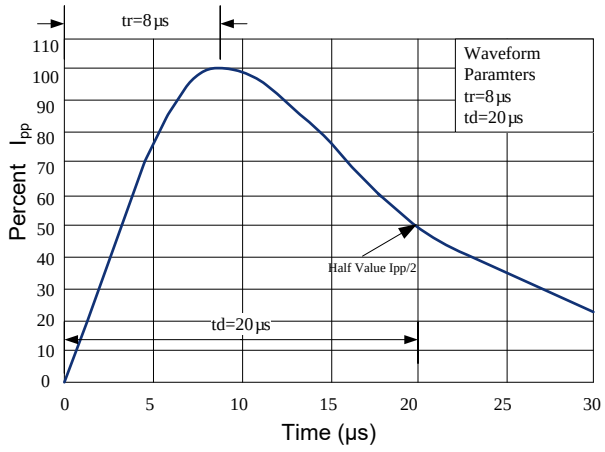
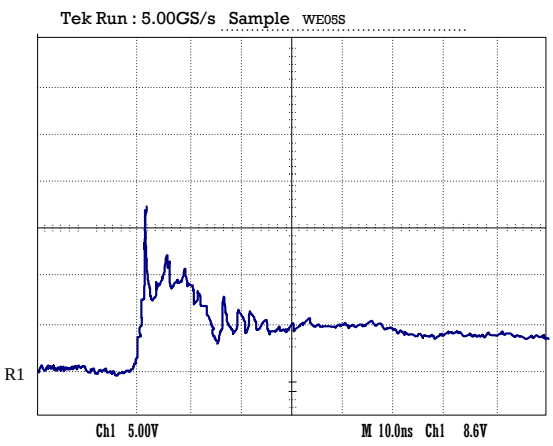


Figure 6: ESD Clamping(8kV Contact per IEC 61000-4-2)



Application Information

The DW05MSC-S Series are TVS arrays designed to protect I/O or data lines from the damaging effects of ESD or EFT. This product provides unidirectional protection; the device is connected as follows:

UNIDIRECTIONAL COMMON-MODE CONFIGURATION

The DW05MSC-S Series provides up to five(5) lines of protection in a common-mode configuration as depicted in Figure 7. Circuit connectivity is as follows:

- I/O 1 is connected to Pin 6.
- I/O 2 is connected to Pin 5.
- I/O 3 is connected to Pin 4.
- I/O 4 is connected to Pin 3.
- I/O 5 is connected to Pin 1.
- Pin 2 is connected to ground.

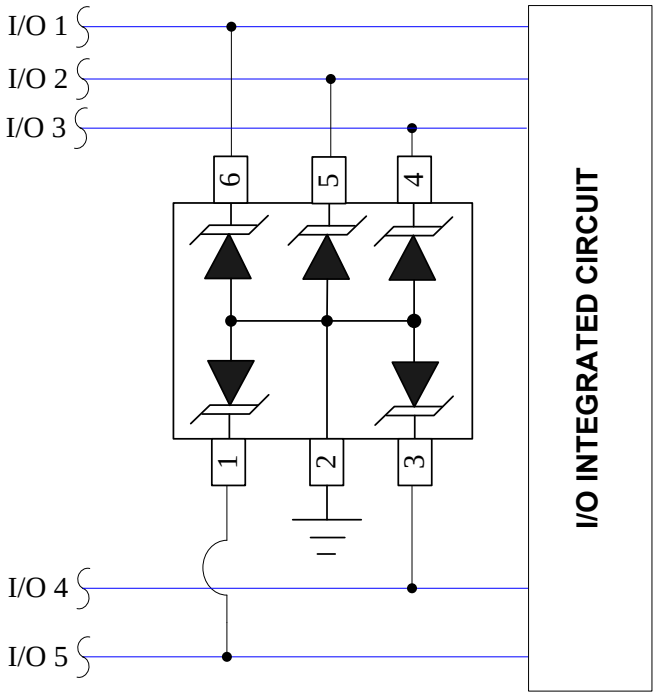


Figure 7 Unidirectional Configuration Common-Mode I/O Port Protections

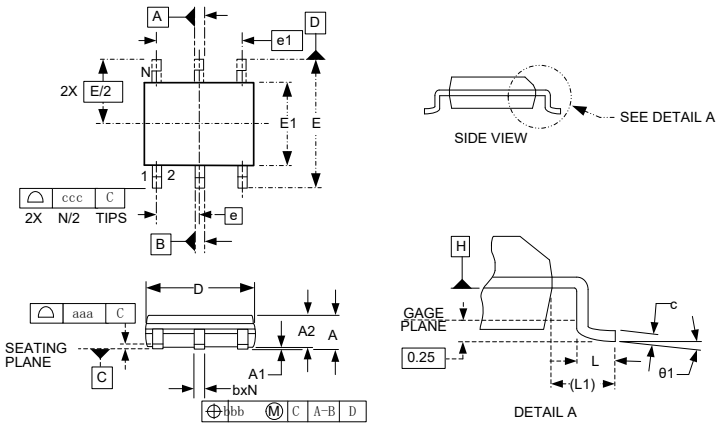
CIRCUIT BOARD LAYOUT RECOMMENDATIONS

Circuit board layout is critical for Electromagnetic Compatibility (EMC) protection. The following guidelines are recommended:

- The protection device should be placed near the input terminals or connectors, the device will divert the transient current immediately before it can be coupled into the nearby traces.
- The path length between the TVS device and the protected line should be minimized.
- All conductive loops including power and ground loops should be minimized.
- The transient current return path to ground should be kept as short as possible to reduce parasitic inductance.
- Ground planes should be used whenever possible. For multilayer PCBs, use ground vias.

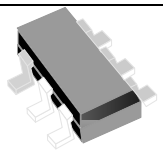
Outline Drawing – SOT-23-6L

PACKAGE OUTLINE



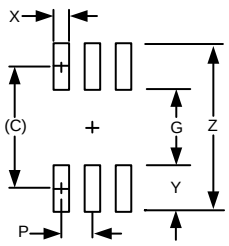
NOTES:

1. Controlling Dimensions are In Millimeters (Angles In Degrees).
2. Datums -A- And -B- To Be Determined At Datum Plane -H-.
3. Dimensions “E1” And “D” Do Not Include Mold Flash，Protrusions Or Gate Burrs.



SOT-23-6L

DIMENSIONS						
DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.057	0.90	-	1.45
A1	.000	-	.006	0.00	-	0.15
A2	.035	.049	.051	0.90	1.25	1.30
b	.010	-	.020	0.35	-	0.50
c	.003	-	.007	0.08	-	0.20
D	.110	.114	.122	2.80	2.90	3.00
E1	.060	.063	.069	1.50	1.625	1.75
E	.110BSC			2.80 BSC		
e	.037 BSC			0.95 BSC		
e1	.075BSC			1.90 BSC		
L	.013	.018	.024	0.35	0.45	0.60
L1	(.024)			(0.60)		
θ1	0°	-	8°	0°	-	8°
N	6			6		
aaa	.004			0.10		
bbb	.008			0.20		
ccc	.008			0.20		



DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	(.098)	(2.50)
G	.055	1.40
P	.037	0.95
X	.024	0.60
Y	.043	1.10
Z	.141	3.60

Notes

THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

Marking Codes

Part Number	DW05MSC-S
Marking Code	05S

Package Information

Qty：3k/Reel