

Description

The SMF05C is a 5V TVS array, utilizing leading mono-lithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The SMF05C 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 a 6-Pin lead-free SOT-363 package. The low clamping voltage array make it ideal for use in portable electronics such as cell phones, PDAs, and digital cameras.

Features

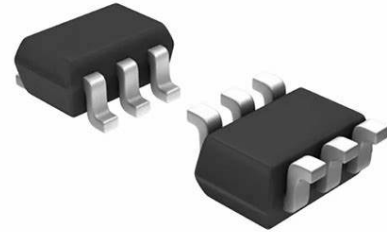
- Low leakage current
- Operating voltage: 5V
- Low clamping voltage
- JEDEC SOT-363 package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 8A (8/20 μs)
- RoHS Compliant

Mechanical Characteristics

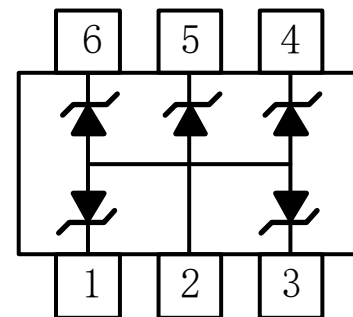
- Package: SOT-363
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Terminal Connections: See Diagram Below

Applications

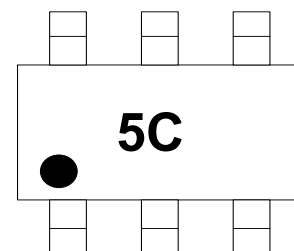
- Peripherals
- Industrial Equipment
- Notebook Computers
- Portable Instrumentation
- Microprocessor Based Equipment
- Cell Phone Handsets and Accessories
- Personal Digital Assistants (PDAs) and Pagers



SOT-363



Circuit diagram



5C = Device Marking Code

Dot denotes Pin1

Marking (Top View)

Ordering Information

Part Number	Packaging	Reel Size
SMF05C	3000/Tape & Reel	7 inch

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

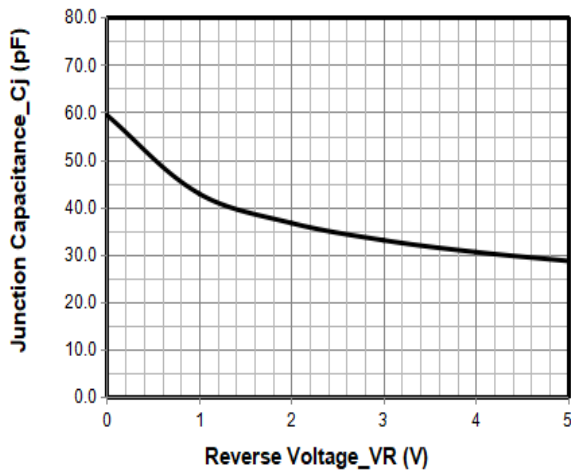
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	100	W
Peak Pulse Current (8/20 μs)	I _{PP}	8	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	± 30 ± 30	kV
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

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

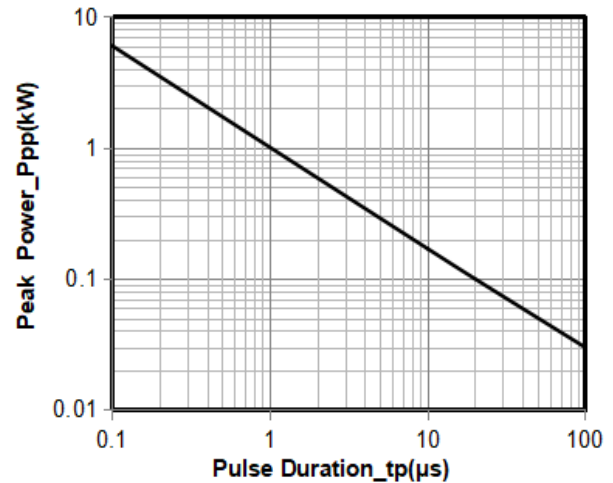
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5	V	
Reverse Breakdown Voltage	V _{BR}	6		8.5	V	I _T = 1mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 5V, any I/O pin to ground
Clamping Voltage	V _C			9	V	I _{PP} = 1A (8 x 20 μs pulse), any I/O pin to ground
Clamping Voltage	V _C			12	V	I _{PP} = 8A (8 x 20 μs pulse), any I/O pin to ground
Junction Capacitance	C _J		60		pF	V _R = 0V, f = 1MHz, any I/O pin to ground

Note 1: I/O pins are Pin 1, 3, 4, 5, 6

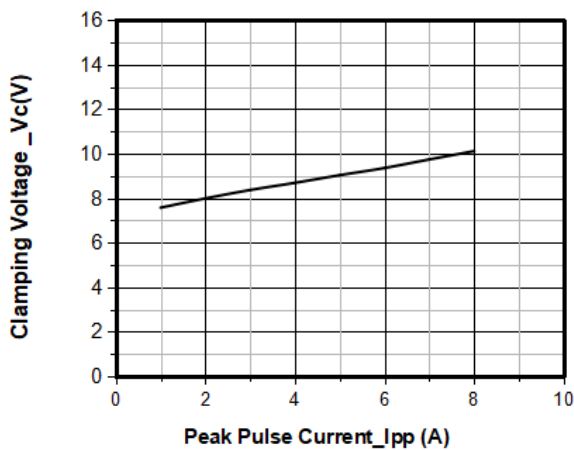
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



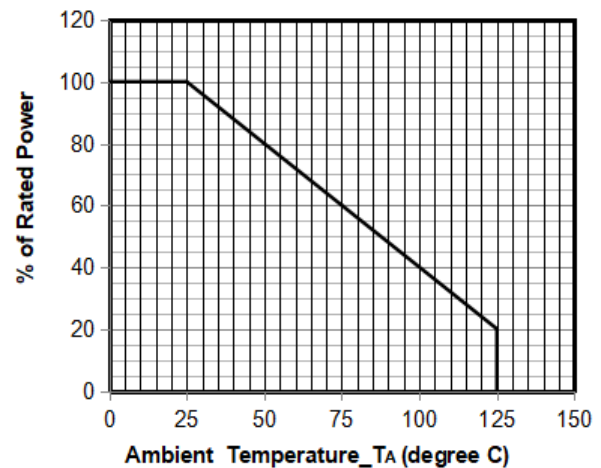
Junction Capacitance vs. Reverse Voltage



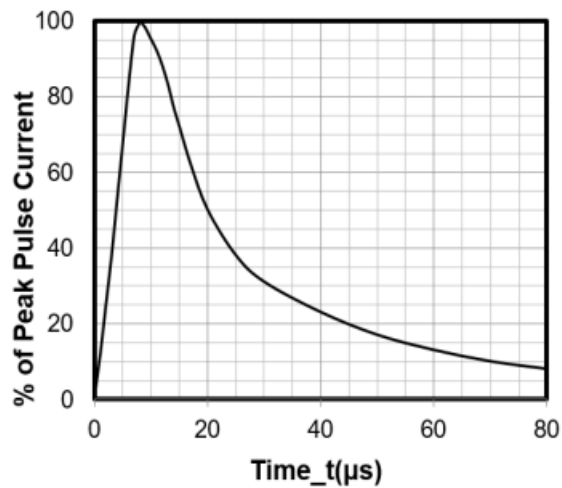
Peak Pulse Power vs. Pulse Time



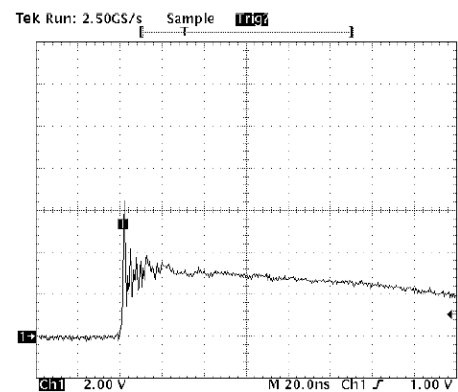
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20 μs Pulse Waveform

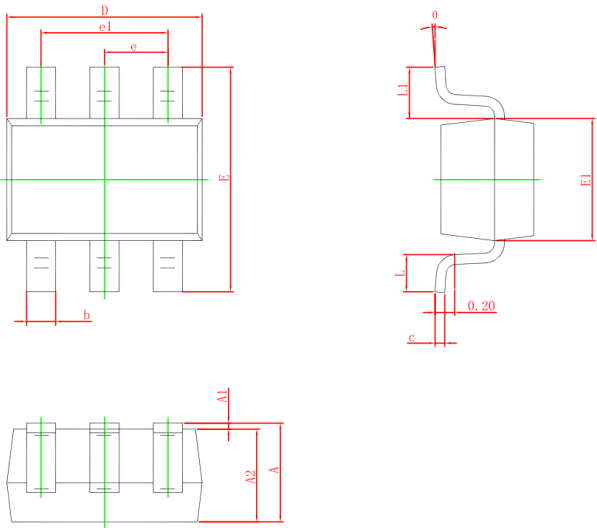


Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

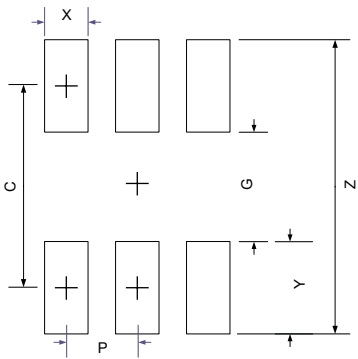
8 kV Contact per IEC61000-4-2

SOT-363 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.900	-	1.100	0.035	-	0.043
A1	0.000	-	0.100	0.000	-	0.004
A2	0.900	-	1.000	0.035	-	0.039
b	0.150	-	0.350	0.006	-	0.014
c	0.080	-	0.150	0.003	-	0.006
D	2.000	-	2.200	0.079		0.087
E	2.150	-	2.450	0.085	-	0.096
E1	1.150	-	1.350	0.045	-	0.053
e	0.650 TYP.			0.026 TYP.		
e1	1.200	-	1.400	0.047	-	0.055
L	0.260	-	0.460	0.010	-	0.018
L1	0.525 REF.			0.021 REF.		
θ	0°	-	8°	0°	-	8°

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	1.85	0.073
G	1.00	0.039
P	0.65	0.026
X	0.40	0.016
Y	0.85	0.033
Z	2.70	0.106