SuperESD - SMF05C

1. Description

The SMF05C is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±12kV Contact Discharge
  - ±17kV Air Discharge
- 100W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- RoHS compliant
- Protecting 5 unidirectional lines
- Capacitance: 100pF Typ.

3. Applications

- Cellular Handsets and Accessories
- Cordless Phones
- Personal Digital Assistants (PDA's)
- Notebooks & Handhelds
- Digital Cameras
- Portable Instrumentation

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
SMF05C	SOT-363	.5C	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5. Pin Configuration and Functions

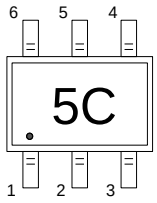
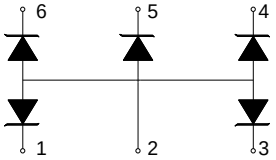
Pin	Name	Description	Outline	Circuit Diagram
1	IO1	Connect to I/O		
2	GND	Connect to GND		
3	IO2	Connect to I/O		
4	IO3	Connect to I/O		
5	IO4	Connect to I/O		
6	IO5	Connect to I/O		

Table-2 Pin configuration

6. Specification

6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25℃	P_{pk}	-	100	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		8	A
ESD (IEC61000-4-2 air discharge) @25℃	V_{ESD}	-	±17	kV
ESD (IEC61000-4-2 contact discharge) @25℃	V_{ESD}	-	±12	kV
Junction temperature	T_J	-	150	℃
Operating temperature	T_{OP}	-40	125	℃
Storage temperature	T_{STG}	-55	150	℃
Lead temperature	T_L	-	260	℃

Table-3 Absolute Maximum rating

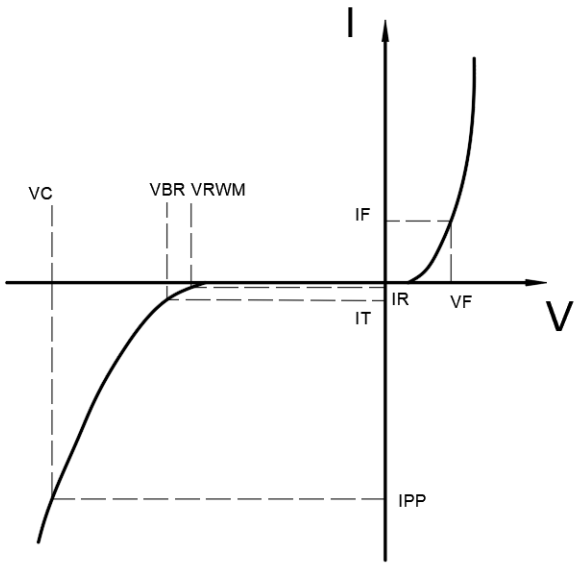
6.2. Electrical Characteristics

At TA = 25℃ unless otherwise noted

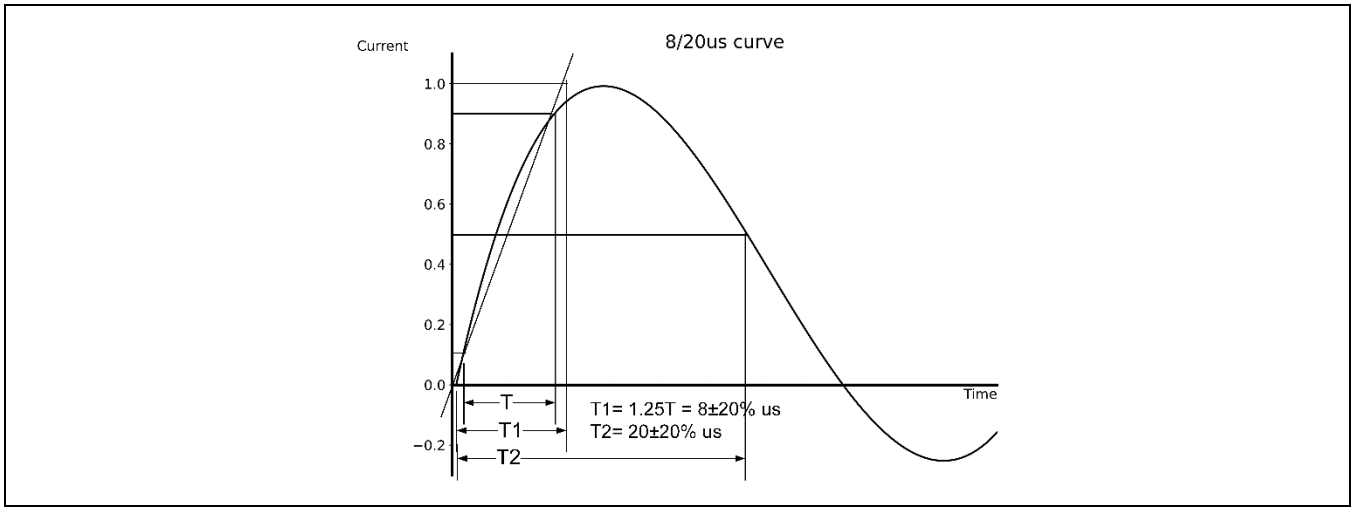
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	IT=1mA	6			V
Reverse Leakage Current	I_R	V_{RWM}=5V			1	uA
Clamping Voltage	V_C	I_{PP}=1A; tp=8/20us		9.5		V
Clamping Voltage	V_C	I_{PP}=8A; tp=8/20us		15		V
Junction Capacitance	C_J	I/O to GND; VR=0V; f=1MHz		100		pF

Table-4 Electrical Characteristics

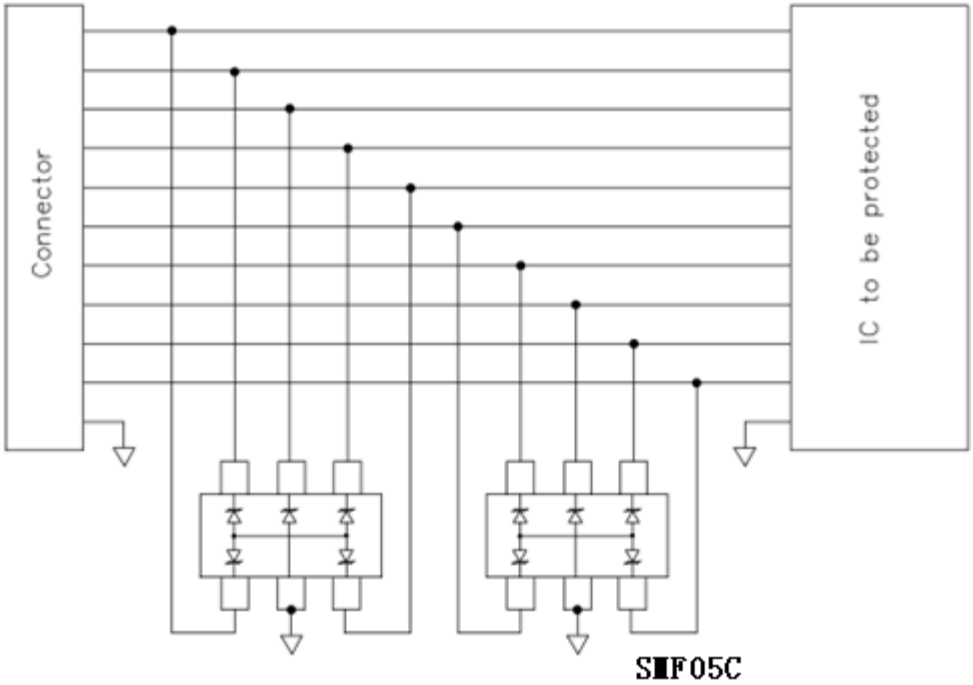
Symbol	Parameters
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
I_F	Forward Current
V_F	Forward Voltage @ I_F



7. Typical Characteristic

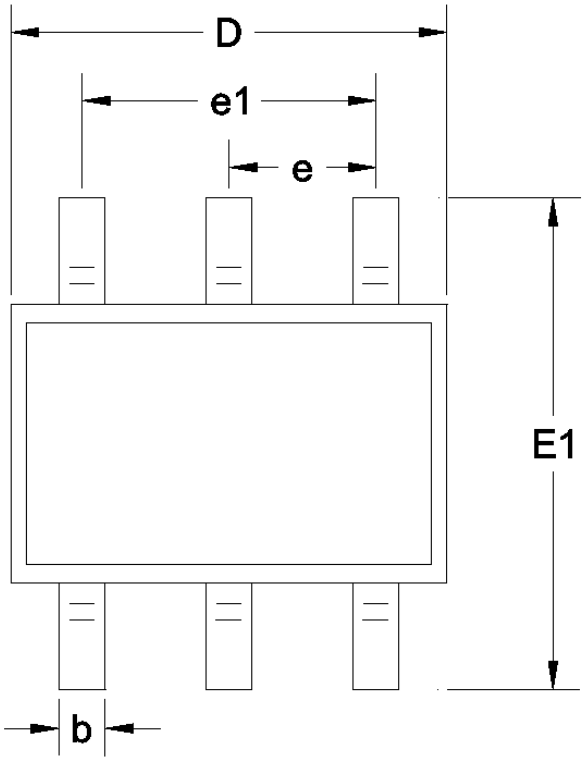


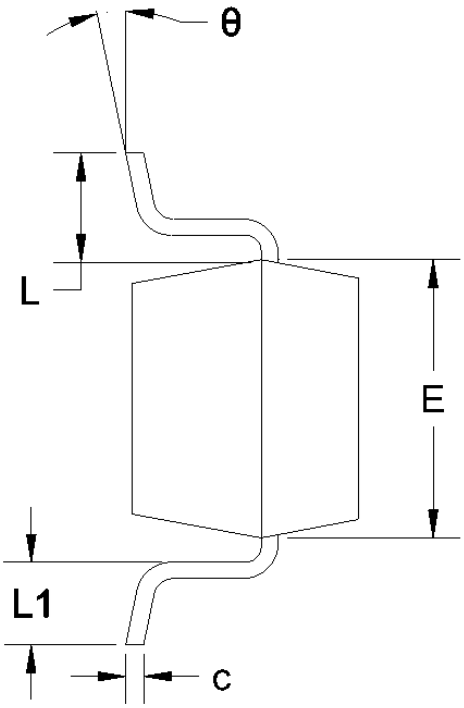
8. Typical Application

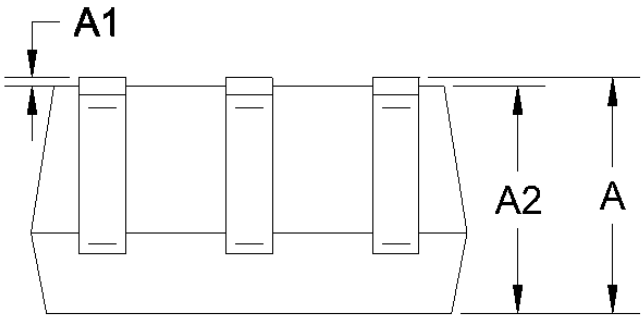


Typical Interface Application

9. Dimension







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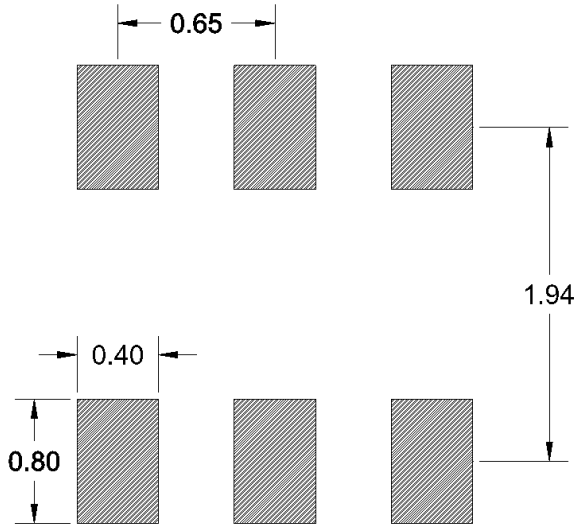
Unit: mm

Symbol		A	A1	A2	b	c	D	θ
Spec	Min	0.900	0.000	0.900	0.150	0.080	2.000	0°
	Max	1.100	0.100	1.000	0.350	0.150	2.200	8°
Symbol		E	E1	e	e1	L	L1	-
Spec	Min	1.150	2.150	0.650	1.200	0.525	0.2600	-
	Max	1.350	2.450	REF	1.400	REF	0.4600	-

Table-5 Product dimensions in millimeter

10. Recommended Land Pattern



Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference only

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