

SM05~SM36

ESD Protection Diode

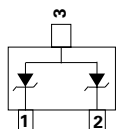
VOLTAGE 5~36 Volt

FEATURES

- 400W peak pulse power (8/20 us)
- Low clamping voltage
- Low leakage current
- IEC 61000-4-2 $\pm 30\text{KV}$ air, $\pm 30\text{KV}$ contact
- Lead free in compliance with EU RoHS

MECHANICAL DATA

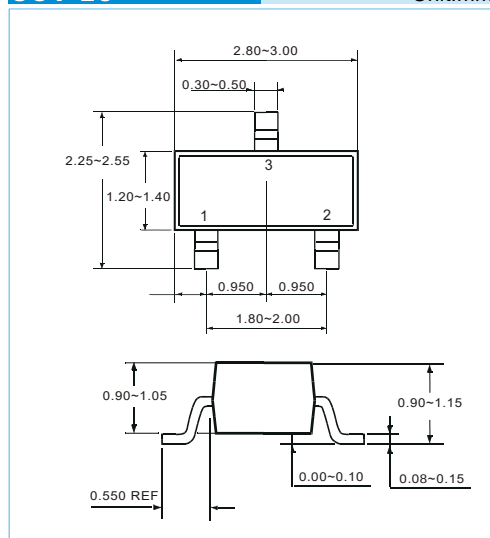
- Case Material: Molded Plastic.
- UL Flammability Classification Rating 94V-0



Schematic Diagram

SOT-23

Unit:mm



ABSOLUTE MAXIMUM RATINGS($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($T_P=8/20\mu\text{S}$)	P_{PP}	400	W
Junction Temperature	T_J	-55 to +125	$^\circ\text{C}$
Storage temperature	T_{STG}	-55 to +150	$^\circ\text{C}$

SM05 ELECTRICAL CHARACTERISTICS($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse stand-off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	6.0			V
Reverse Leakage Current	I_R	$V_R=5\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP}=1.0\text{A}$			9.8	V
	V_C	$I_{PP}=10\text{A}$			13	V
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu\text{s}$			24	A
Junction Capacitance	C_J	$V_R=0\text{V}, f=1\text{MHz}$			400	pF

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SM12 ELECTRICAL CHARACTERISTICS($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse stand-off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	13.3			V
Reverse Leakage Current	I_R	$V_R=12\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP}=1.0\text{A}, t_p = 8/20\mu\text{s}$			18.5	V
	V_C	$I_{PP}=10\text{A}, t_p = 8/20\mu\text{s}$			22.5	V
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu\text{s}$			17	A
Junction Capacitance	C_J	$V_R=0\text{V}, f=1\text{MHz}$			150	pF

SM15 ELECTRICAL CHARACTERISTICS($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse stand-off Voltage	V_{RWM}				15	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	16.7			V
Reverse Leakage Current	I_R	$V_R=15\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP}=1.0\text{A}, t_p = 8/20\mu\text{s}$			24	V
	V_C	$I_{PP}=10\text{A}, t_p = 8/20\mu\text{s}$			30	V
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu\text{s}$			12	A
Junction Capacitance	C_J	$V_R=0\text{V}, f=1\text{MHz}$			100	pF

SM24 ELECTRICAL CHARACTERISTICS($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse stand-off Voltage	V_{RWM}				24	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	26.7			V
Reverse Leakage Current	I_R	$V_R=24\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP}=1.0\text{A}, t_p = 8/20\mu\text{s}$			36	V
	V_C	$I_{PP}=10\text{A}, t_p = 8/20\mu\text{s}$			42	V
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu\text{s}$			7	A
Junction Capacitance	C_J	$V_R=0\text{V}, f=1\text{MHz}$			65	pF

SM36 ELECTRICAL CHARACTERISTICS($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse stand-off Voltage	V_{RWM}				36	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	40			V
Reverse Leakage Current	I_R	$V_R=36\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP}=1.0\text{A}, t_p = 8/20\mu\text{s}$			52	V
	V_C	$I_{PP}=10\text{A}, t_p = 8/20\mu\text{s}$			62	V
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu\text{s}$			5	A
Junction Capacitance	C_J	$V_R=0\text{V}, f=1\text{MHz}$			50	pF

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Typical Characteristics

Fig 1 Non-Repetitive Peak Pulse Power vs. Pulse Time

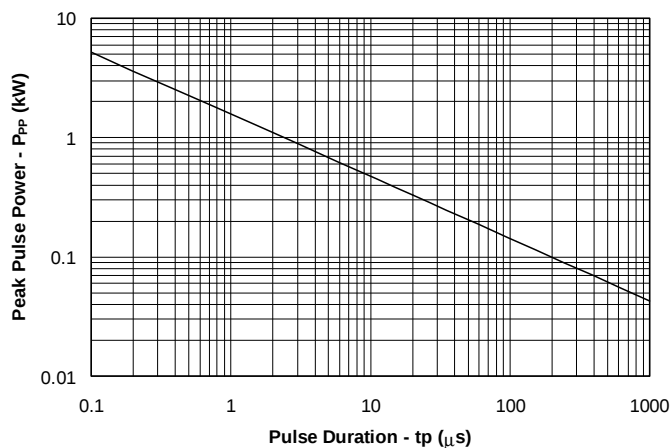


Fig 2 Capacitance vs. Bias

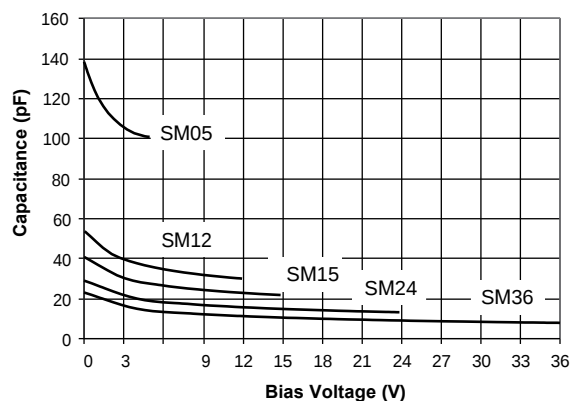


Fig 3 Power Derating Curve

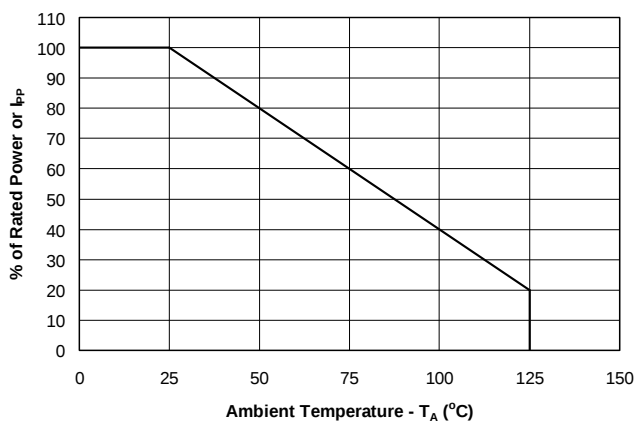
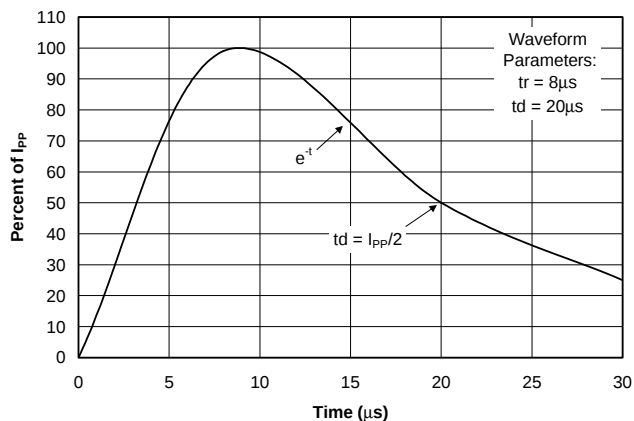


Fig 4 8/20 μs Pulse Waveform

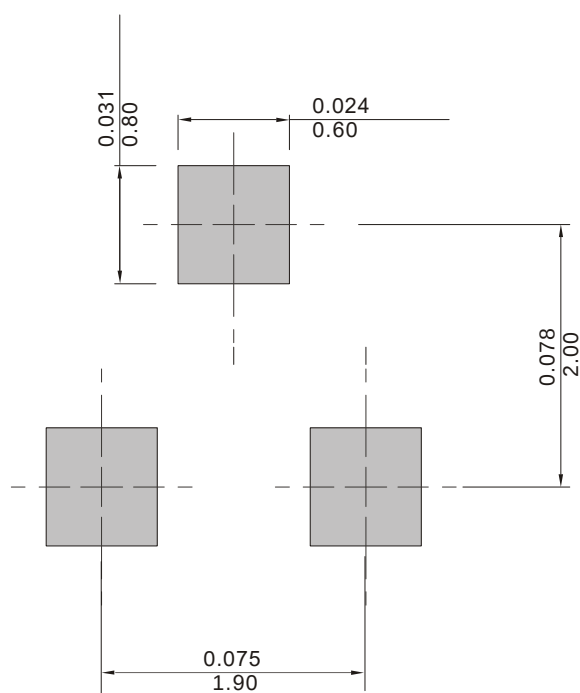


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MOUNTING PAD LAYOUT

SOT-23

Unit:Inch(mm)



ORDER INFORMATION

- Packing information

Part Number	Case	Reel Size	QUANTITY
SM05~SM36	SOT-23	7 Inch	3000