SM05~SM36

VOLTAGE **5 to 36 Volts** **WATT** **300 Watts**

FEATURES

- Improved leakage current, maximum of 5 µA @ 5Vdc
- Maximum capacitance @ 0 Vdc Bias of 1.2 pF between terminals 1-3 or terminals 2-3
- IEC61000-4-2 esd 15kV Air, 8kV contact compliance
- IEC61000-4-5 lightning 17 Amps peak, 8x20 usec waveform
- Pb free product are available : 99% Sn above can meet RoHS environment substance directive request

MECHANICALDATA

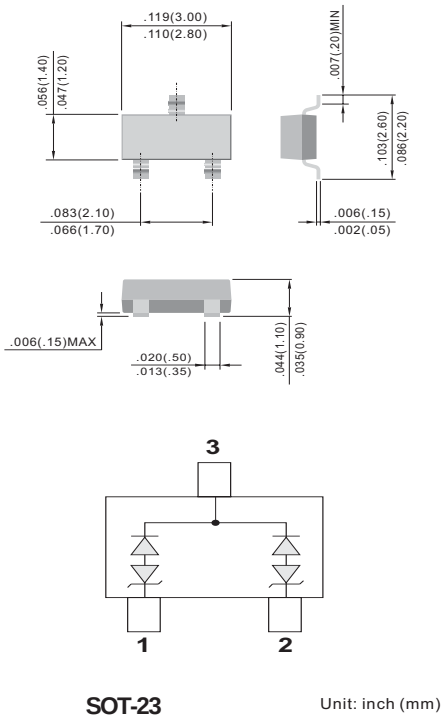
Case: SOT-23, plastic

Terminals: solderable per MIL-STD-750, Method 2026

Appox. Weight : 8mg

Marking :

SM05	M 05
SM12	M 12
SM15	M 15
SM24	M 24
SM36	M 36



SOT-23 Unit: inch (mm)

MAXIMUM RATINGS

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20µs)	P_{pk}	300	Watts
Thermal Resistance, Junction to Ambient	θ_{JA}	556	°C/W
Lead Soldering Temperature	T	260 (10 sec.)	°C
Operating Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

SM05

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA	6			V
Reverse eakage Current	I_R	V_{RWM} = 5V, T=25°C			20	μA
Clamping Voltage	V_C	I_{PP} = 1A, tp = 8/20μs			9.8	V
Maximum Peak Pulse Current	I_{pp}	tp = 8/20μs			17	A
Junction Capacitance	C_j	Pin 1 to 2 V_R = 0V, f = 1MHz			350	pF
Junction Capacitance	C_j	Pin 1 to 3 and Pin 2 to 3 V_R = 0V, f = 1MHz			400	pF

SM12

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA	13.3			V
Reverse eakage Current	I_R	V_{RWM} = 12V, T=25°C			1	μA
Clamping Voltage	V_C	I_{PP} = 1A, tp = 8/20μs			19	V
Maximum Peak Pulse Current	I_{pp}	tp = 8/20μs			12	A
Junction Capacitance	C_j	Pin 1 to 2 V_R = 0V, f = 1MHz			120	pF
Junction Capacitance	C_j	Pin 1 to 3 and Pin 2 to 3 V_R = 0V, f = 1MHz			150	pF

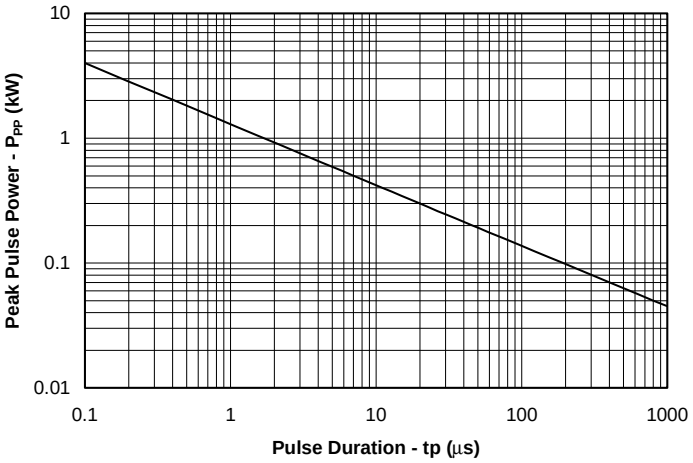
SM15

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				15	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA	16.7			V
Reverse eakage Current	I_R	V_{RWM} = 15V, T=25°C			1	μA
Clamping Voltage	V_C	I_{PP} = 1A, tp = 8/20μs			24	V
Maximum Peak Pulse Current	I_{pp}	tp = 8/20μs			10	A
Junction Capacitance	C_j	Pin 1 to 2 V_R = 0V, f = 1MHz			75	pF
Junction Capacitance	C_j	Pin 1 to 3 and 2 to 3 V_R = 0V, f = 1MHz			100	pF

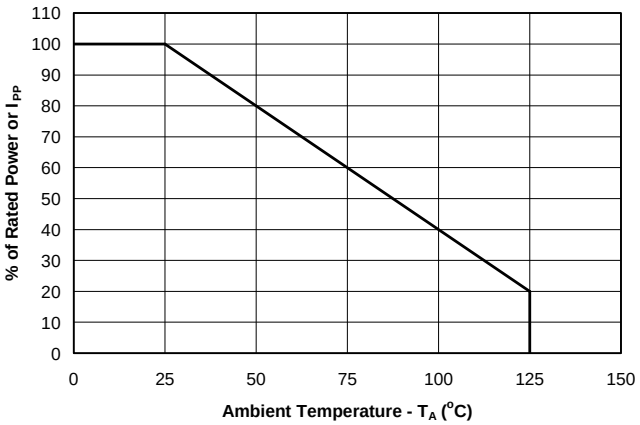
SM24						
Parameter	**Symbol**	**Conditions**	**Minimum**	**Typical**	**Maximum**	**Units**
Reverse Stand-Off Voltage	V_{RWM}				24	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA	26.7			V
Reverse eakage Current	I_R	V_{RWM} = 24V, T=25°C			1	μA
Clamping Voltage	V_C	I_{PP} = 1A, tp = 8/20μs			43	V
Maximum Peak Pulse Current	I_{pp}	tp = 8/20μs			5	A
Junction Capacitance	C_j	Pin 1 to 2 V_R = 0V, f = 1MHz			50	pF
Junction Capacitance	C_j	Pin 1 to 3 and 2 to 3 V_R = 0V, f = 1MHz			60	pF

SM36						
Parameter	**Symbol**	**Conditions**	**Minimum**	**Typical**	**Maximum**	**Units**
Reverse Stand-Off Voltage	V_{RWM}				36	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA	40			V
Reverse eakage Current	I_R	V_{RWM} = 36V, T=25°C			1	μA
Clamping Voltage	V_C	I_{PP} = 1A, tp = 8/20μs			60	V
Maximum Peak Pulse Current	I_{pp}	tp = 8/20μs			4	A
Junction Capacitance	C_j	Pin 1 to 2 V_R = 0V, f = 1MHz			40	pF
Junction Capacitance	C_j	Pin 1 to 3 and 2 to 3 V_R = 0V, f = 1MHz			45	pF

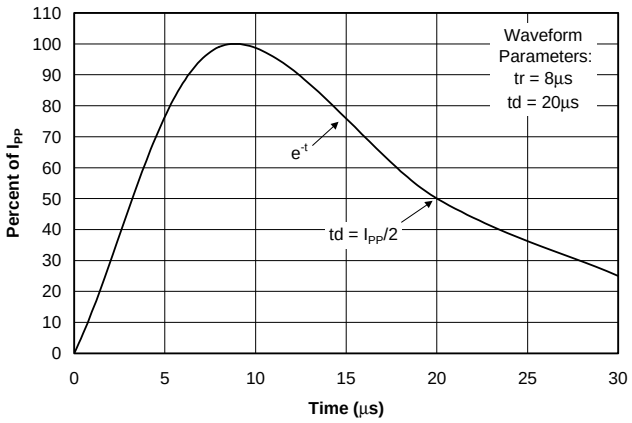
Non-Repetitive Peak Pulse Power vs. Pulse Time



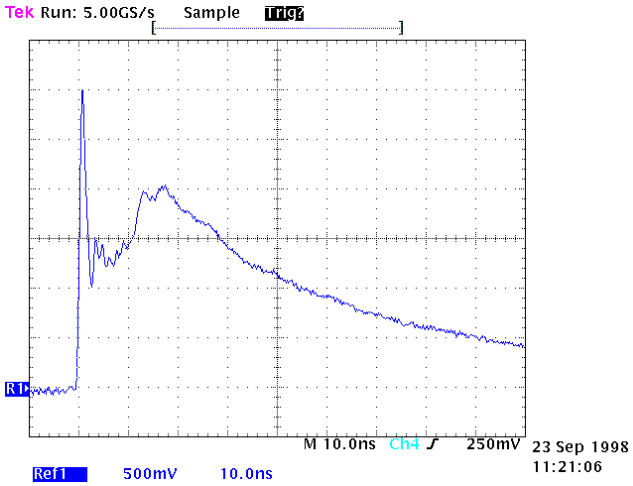
Power Derating Curve



Pulse Waveform



ESD Pulse Waveform (Per IEC 61000-4-2)



IEC 61000-4-2 Discharge Parameters

Level	First Peak Current (A)	Peak Current at 30 ns (A)	Peak Current at 60 ns (A)	Test Voltage (Contact Discharge) (kV)	Test Voltage (Air Discharge) (kV)
1	7.5	4	8	2	2
2	15	8	4	4	4
3	22.5	12	6	6	8
4	30	16	8	8	15