

Features

- 150 Watts peak pulse power ($t_p=8/20\mu s$), 2-Line of ESD Protection
- Low clamping voltage
- Working voltage: 3V, 5V, 12V, 15V, 24V
- Low leakage current
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

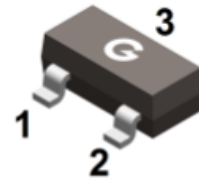
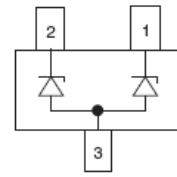
HF

Typical Applications

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Portable Instrumentation

Mechanical Data

- Case: SOT-23
- Molding compound, UL flammability classification rating 94V-0.
- Terminals: Tin plated leads, solderable per MIL-STD-202, Method 208.



SOT-23

Ordering Information

Part Number	Package	Shipping	Marking Code
TSOT03C	SOT-23	3000 pcs / Tape & Reel	T03
TSOT05C	SOT-23	3000 pcs / Tape & Reel	T05
TSOT12C	SOT-23	3000 pcs / Tape & Reel	T12
TSOT15C	SOT-23	3000 pcs / Tape & Reel	T15
TSOT24C	SOT-23	3000 pcs / Tape & Reel	T24

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

Characteristic	Symbol	Value	Units
Peak pulse power ($t_p = 8/20\mu s$)	P_{PK}	150	W
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	KV
ESD according to IEC61000-4-2 contact discharge		± 30	

Thermal Characteristics

Parameter	Symbol	Value	Units
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	454	$^\circ\text{C/W}$
Junction temperature	T_J	$-55 \sim +125$	$^\circ\text{C}$
Storage temperature range	T_{STG}	$-55 \sim +150$	$^\circ\text{C}$

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

TSOT03C TVS for 3V Lines						
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}		-	-	3	V
Reverse breakdown voltage	V_{BR}	$I_T = 1\text{mA}$	4.5	-	6.5	V
Reverse leakage current	I_R	$V_R = 3\text{V}$	-	-	1	μA
Clamping voltage	V_C	$I_{PP} = 15\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	12	V
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	200	pF
TSOT05C TVS for 5V Lines						
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}		-	-	5	V
Reverse breakdown voltage	V_{BR}	$I_T = 1\text{mA}$	6	-	8	V
Reverse leakage current	I_R	$V_R = 5\text{V}$	-	-	1	μA
Clamping voltage	V_C	$I_{PP} = 12\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	13	V
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	150	pF
TSOT12C TVS for 12V Lines						
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}		-	-	12	V
Reverse breakdown voltage	V_{BR}	$I_T = 1\text{mA}$	13.3	-	16	V
Reverse leakage current	I_R	$V_R = 12\text{V}$	-	-	1	μA
Clamping voltage	V_C	$I_{PP} = 8\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	20	V
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	100	pF
TSOT15C TVS for 15V Lines						
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}		-	-	15	V
Reverse breakdown voltage	V_{BR}	$I_T = 1\text{mA}$	16.7	-	20	V
Reverse leakage current	I_R	$V_R = 15\text{V}$	-	-	1	μA
Clamping voltage	V_C	$I_{PP} = 6\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	25	V
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	80	pF
TSOT24C TVS for 24V Lines						
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}		-	-	24	V
Reverse breakdown voltage	V_{BR}	$I_T = 1\text{mA}$	26.7	-	33	V
Reverse leakage current	I_R	$V_R = 24\text{V}$	-	-	1	μA
Clamping voltage	V_C	$I_{PP} = 3\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	50	V
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	70	pF

Ratings and Characteristic Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

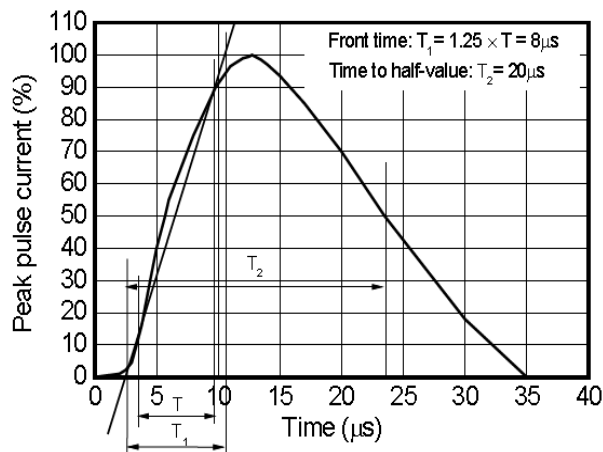


Fig 1 8/20 μs waveform per IEC61000-4-5

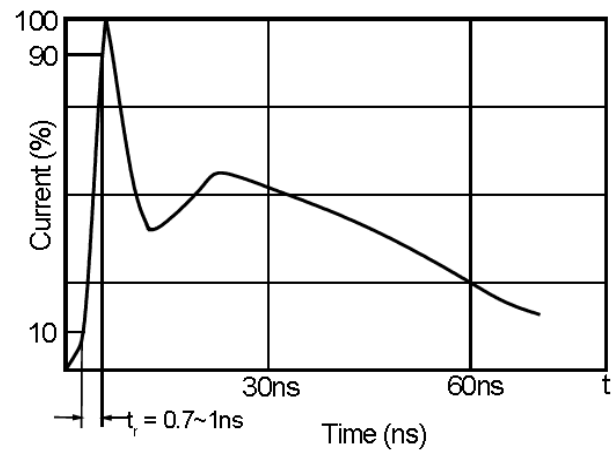


Fig 2 ESD pulse waveform according to IEC61000-4-2

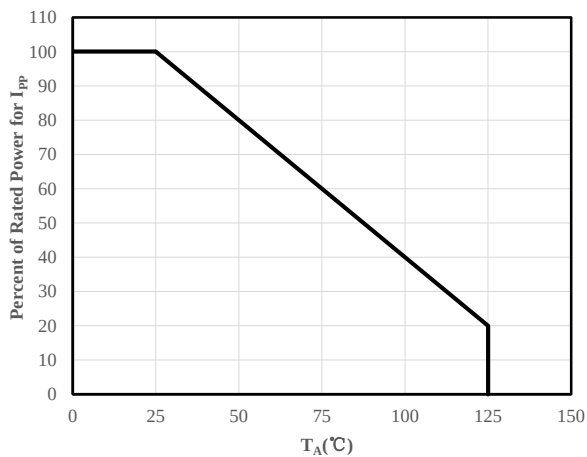
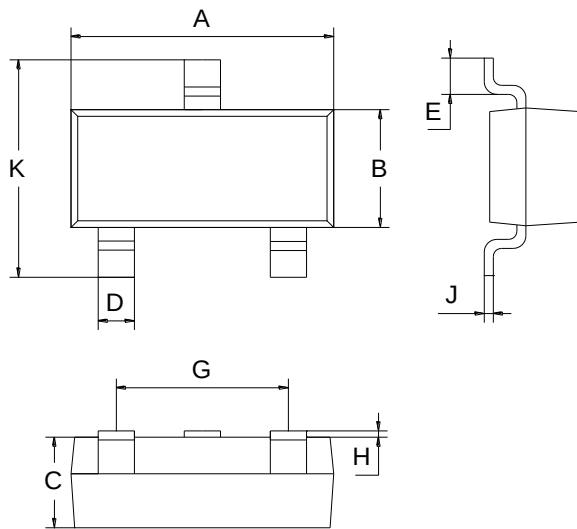


Fig 3 Power Derating Curve

Package Outline Dimensions (unit: mm)



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

Mounting Pad Layout (unit: mm)

