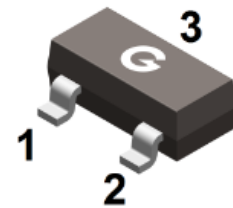
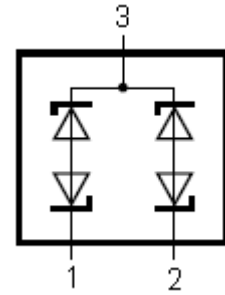


Features

- ESD Protection of Two Lines
- Low Clamping Voltage
- Working Voltage: 3.3V, 5V, 12V, 15V, 24V, 36V
- Low Leakage Current
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF



SOT-23

Typical Applications

- Cell Phone Handsets and Accessories
- Computers and Peripherals
- Audio and Video Equipment
- Communication Systems
- Portable Electronics

Mechanical Data

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

Ordering Information

Part Number	Package	Shipping	Marking Code
TSOT03BC	SOT-23	3000 pcs / Tape & Reel	T03B
TSOT05BC	SOT-23	3000 pcs / Tape & Reel	T05B
TSOT12BC	SOT-23	3000 pcs / Tape & Reel	T12B
TSOT15BC	SOT-23	3000 pcs / Tape & Reel	T15B
TSOT24BC	SOT-23	3000 pcs / Tape & Reel	T24B
TSOT36BC	SOT-23	3000 pcs / Tape & Reel	T36B

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Characteristic	Symbol	Value	Unit
Peak pulse power (t _p = 8/20μs)	P _{PK}	200	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	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	454	°C/W
Junction temperature	T_J	-55 ~ +125	°C
Storage temperature range	T_{STG}	-55 ~ +150	°C

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

TSOT03BC TVS for 3.3V Lines						
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}		-	-	3.3	V
Reverse breakdown voltage	V_{BR}		4.5	-	6.5	V
Reverse leakage current	I_R	$V_R = 3.3\text{V}$	-	-	1	uA
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	-	-	100	pF
TSOT05BC TVS for 5V Lines						
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}		-	-	5	V
Reverse breakdown voltage	V_{BR}	$I_R = 1\text{mA}$	6	-	8	V
Reverse leakage current	I_R	$V_R = 5\text{V}$	-	-	1	uA
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	-	-	75	pF
TSOT12BC TVS for 12V Lines						
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}		-	-	12	V
Reverse breakdown voltage	V_{BR}	$I_R = 1\text{mA}$	13.3	-	16	V
Reverse leakage current	I_R	$V_R = 12\text{V}$	-	-	1	uA
Clamping voltage	V_C	$I_{PP}=8\text{A}$, $t_p=8/20\mu\text{s}$	-	-	23	V
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	50	pF
TSOT15BC TVS for 15V Lines						
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}		-	-	15	V
Reverse breakdown voltage	V_{BR}	$I_R = 1\text{mA}$	16.7	-	20	V
Reverse leakage current	I_R	$V_R = 15\text{V}$	-	-	1	uA
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	-	-	40	pF

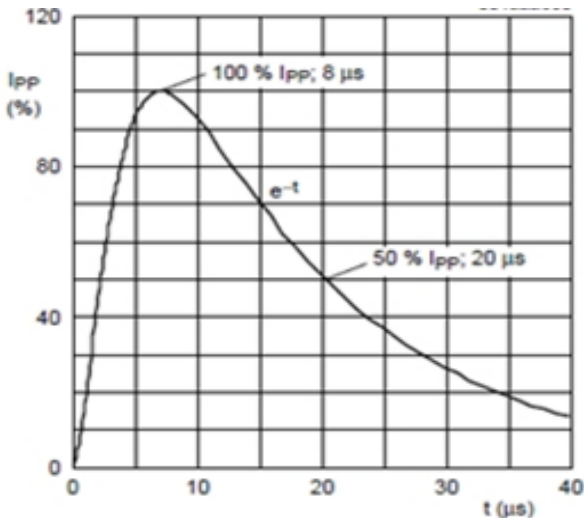
TSOT24BC TVS for 24V Lines

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}		-	-	24	V
Reverse breakdown voltage	V_{BR}	$I_R = 1\text{mA}$	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	-	-	35	pF

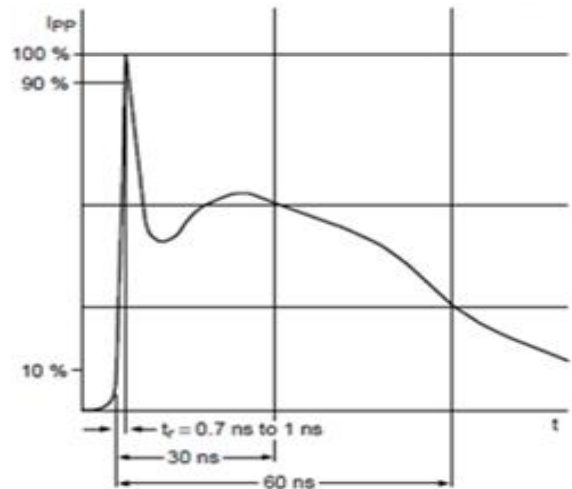
TSOT36BC TVS for 36V Lines

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}		-	-	36	V
Reverse breakdown voltage	V_{BR}	$I_R = 1\text{mA}$	38	-	44	V
Reverse leakage current	I_R	$V_R = 36\text{V}$	-	-	1	μA
Clamping voltage	V_C	$I_{PP}=2\text{A}$, $t_p=8/20\mu\text{s}$	-	-	80	V
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	15	pF

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

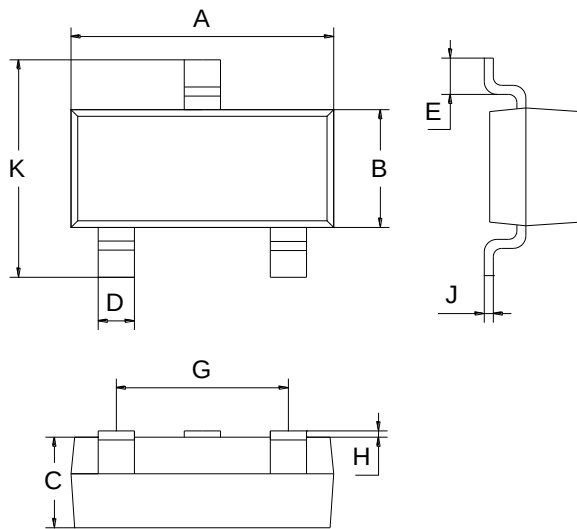


**Fig1. 8/20us pulse waveform according to
IEC61000-4-5**



**Fig2. ESD pulse waveform according to
IEC61000-4-2**

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)

