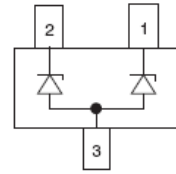


Features

- ESD / transient protection of high speed data lines
 - IEC 61000-4-2 (ESD): ± 30 kV (air), ± 30 kV (contact)
- Working voltage: $V_{RWM} = 3V, 5V, 12V, 15V, 24V$
- Low reverse clamping voltage
- Low leakage current
- Halogen free
- Qualified to AEC-Q101 standards for high reliability

HF



SOT-23

Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TPSOT03C	SOT-23	3000 pcs / Tape & Reel	03C
TPSOT05C	SOT-23	3000 pcs / Tape & Reel	05C
TPSOT12C	SOT-23	3000 pcs / Tape & Reel	12C
TPSOT15C	SOT-23	3000 pcs / Tape & Reel	15C
TPSOT24C	SOT-23	3000 pcs / Tape & Reel	24C

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

Parameter	Symbol	Value	Unit
IEC 61000-4-2; ESD (Air)	V_{ESD-A}	± 30	kV
IEC 61000-4-2; ESD (Contact)	V_{ESD-C}	± 30	kV
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	350	W

Thermal Characteristics

Parameter	Symbol	Value	Unit
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)

TPSOT03C TVS for 3V Lines						
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
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	$V_{RWM} = 3\text{V}$	-	-	1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	7	V
		$I_{PP} = 25\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	12	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	300	pF
TPSOT05C TVS for 5V Lines						
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
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	$V_{RWM} = 5\text{V}$	-	-	1	μA
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	9.8	V
		$I_{PP} = 20\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	15	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	250	pF
TPSOT12C TVS for 12V Lines						
Parameter	Symbol	Test 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	-	16	V
Reverse Leakage Current	I_R	$V_{RWM} = 12\text{V}$	-	-	1	μA
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	19	V
		$I_{PP} = 15\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	25	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	200	pF
TPSOT15C TVS for 15V Lines						
Parameter	Symbol	Test 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	-	20	V
Reverse Leakage Current	I_R	$V_{RWM} = 15\text{V}$	-	-	1	μA
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	27	V
		$I_{PP} = 10\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	40	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Pin 1 or 2 to Pin 3	-	-	150	pF

TPSOT24C TVS for 24V Lines

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}		-	-	24	V
Reverse Breakdown Voltage	$V_{(BR)}$	$I_T = 1mA$	26.7	-	33	V
Reverse Leakage Current	I_R	$V_{RWM} = 24V$	-	-	1	μA
Clamping Voltage	V_C	$I_{PP} = 5A, t_p = 8/20\mu s$	-	-	40	V
		$I_{PP} = 8A, t_p = 8/20\mu s$	-	-	50	V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz$ Pin 1 or 2 to Pin 3	-	-	100	pF

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

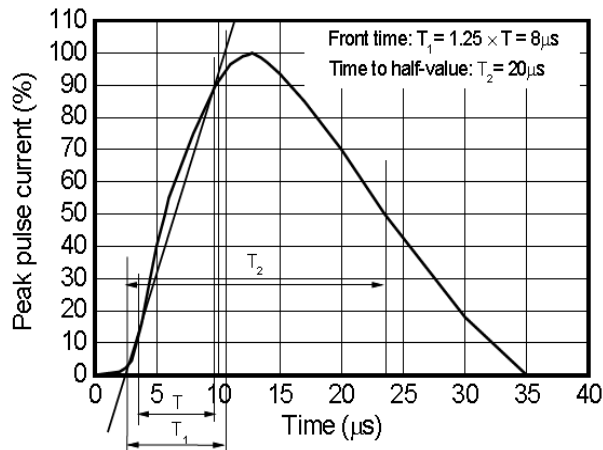


Fig 1 8/20 μs waveform per IEC61000-4-5

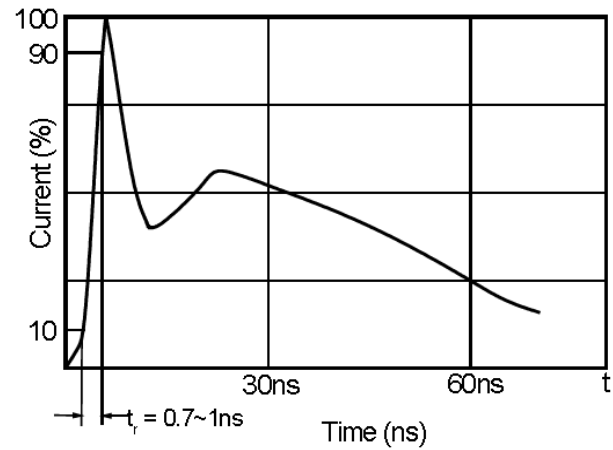


Fig 2 ESD pulse waveform according to IEC61000-4-2

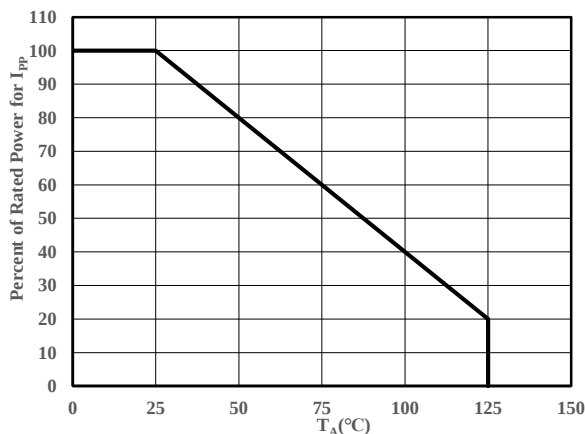
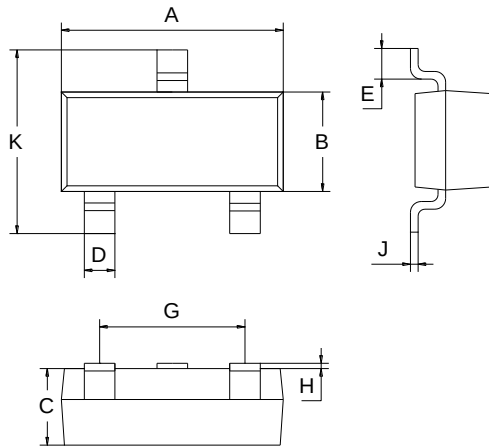


Fig 3 Power Derating Curve

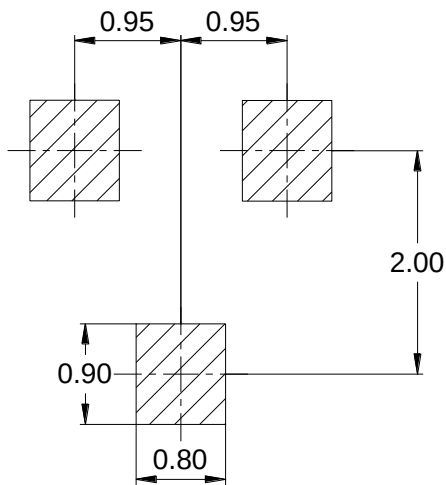
Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	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)

SOT-23



IMPORTANT NOTICE

Changzhou Galaxy Century Microelectronics (GME) reserves the right to make changes without further notice to any product information (copyrighted) herein to make corrections, modifications, improvements, or other changes. GME does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others.