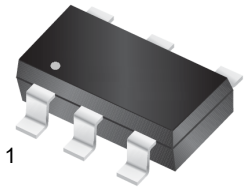
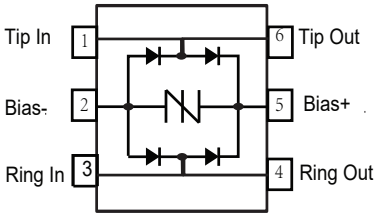
SIDACtor Protection Thyristors in SOT23-6

Features

- 1500Watts peak pulse power (tp = 8/20μs)
- SOT23-6 Package
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance (1.2pF typical Line to Line)
- ESD Protection one data/power lines to:
  IEC 61000-4-2 ±30KV contact ±30KV air
  IEC 61000-4-4 (EFT) 40A (5/50ns)
  IEC 61000-4-5 (Lightning) 50A (8/20μs)





Mechanical Data

- **Case:** SOT23-6 (plastic package).
  Lead free; RoHS compliant; Halogen free
- **Molding Compound Flammability Rating:**
  UL 94 V-0
- **Terminals:** High temperature soldering guaranteed:
  260 °C/10 sec. at terminals

Applications

- ADSL,ADSL2+
- VDSL2,VDSL2+
- G.fast

Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

Parameter	Symbol	Value	Unit
Peak Pulse Power (T_P=8/20μS)	P_{PP}	1500	W
ESD contact/air discharge (IEC-61000-4-2)	V_{ESD}	30/30	kV
Peak Pulse Current (T_P = 8/20μS)	I_{PP}	50	A
Junction Temperature	T_J	-55 to +125	℃
Storage temperature	T_{STG}	-55 to +150	℃

Electrical Characteristics

(T_A = 25 °C unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse stand-off Voltage	V_{RWM}				24	V
Holding Voltage	V_H	I_T=I_H		3.0		V
Holding Current	I_H		20			mA
Reverse Leakage Current	I_R	V_{RWM}=24V			0.5	uA
Clamping Voltage(ESD)	V_C	I_{PP}=50A, T_P=8/20μS		25		V
Trigger Voltage	V_T			31		V
Junction Capacitance	C_J	V_R=0V,f=1MHz, I/O to I/O		1.2		pF

Typical Characteristics (T_{amb} = 25 °C unless otherwise specified)

Fig.1 Peak Pulse Power Rating Curve

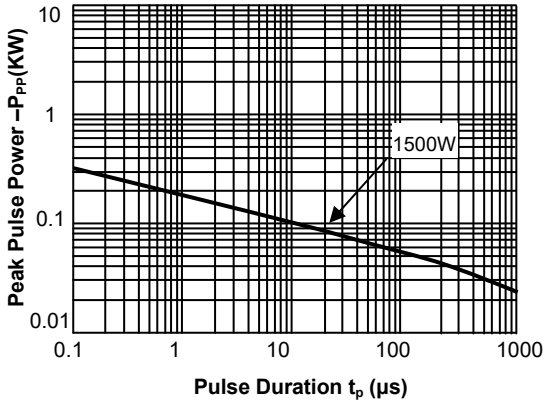


Fig.2 Pulse Derating Curve

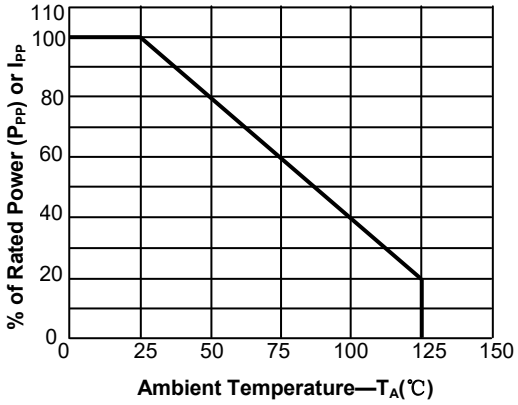


Fig.3 Pulse Waveform-8/20μs

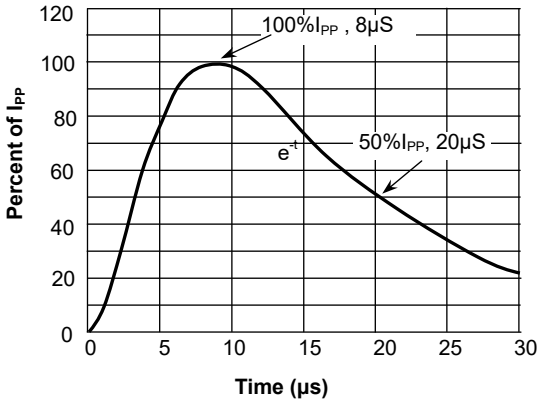
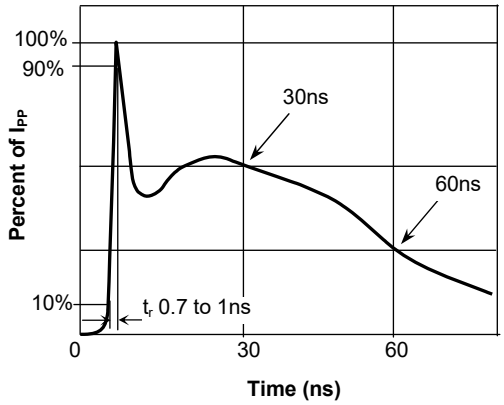


Fig.4 Pulse Waveform-ESD(IEC61000-4-2)



Application

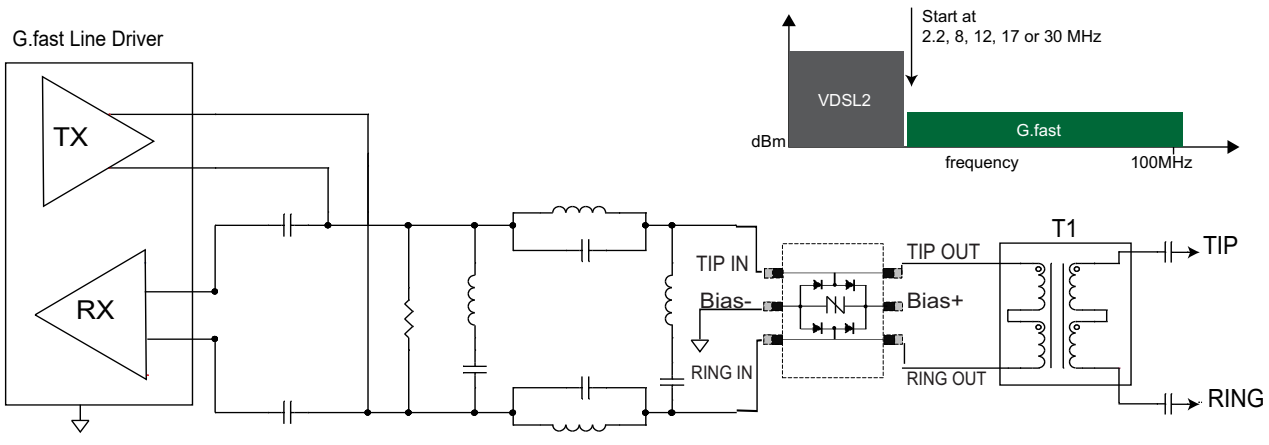
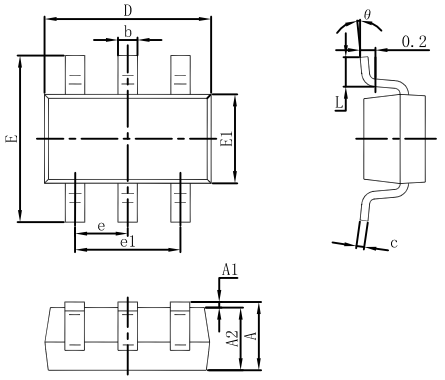


Fig.5 G.fast protection

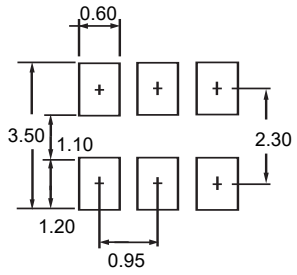
The “Bias -” lead can be connected to the line driver ground with the “Bias + ” lead left open so this solution provides both differential and common mode protection. Both “Bias -” and “Bias +” leads can be left floating for differential only protection and finally for capacitance variance sensitive applications, the “Bias -” and “Bias +” leads may have the appropriate polarity voltage (< VDRM) applied to further minimize any negative capacitance effects.

Package Dimensions

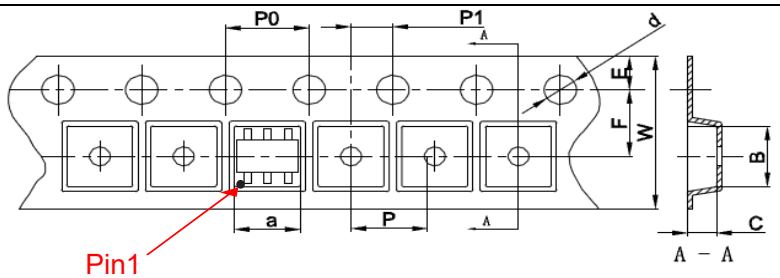


Symbol	Dimensions in millimeters	
	Min	Max
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.820	3.020
E1	1.500	1.700
E	2.650	2.950
e	0.950(BSC)	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°

Pad dimensions

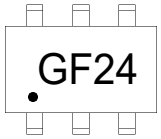


Package information



Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
SOT-23-6	3.17	3.23	1.37	Ø1.55	1.75	3.50	4.00	4.00	2.00	8.00

Marking



Ordering information

Order code	Package	Packaging option	Base quantity	Packaging specification
TGF024TS	SOT23-6	Tape and reel	3000pcs / reel	EIA STD RS-481