

Features

- * 350W peak pulse power (8/20 μ s)
- * Ultra low capacitance: 1.0 pF typical
- * Ultra low leakage: nA level
- * Low operating :
3.3V ,5V,8V,12V,15V,18V,24V,30V
- * Low clamping voltage
- * Protects one power line or data line
- * Complies with following standards:
- * – IEC 61000-4-2 (ESD) immunity test
Air discharge: ± 30 kV
Contact discharge: ± 30 kV
- * – IEC61000-4-4 (EFT) 40A (5/50ns)
- * RoHS Compliant

Mechanical Characteristics

- * Package: SOD-323
- * Lead Finish: Matte Tin
- * Case Material: “Green” Molding Compound.
- * UL Flammability Classification Rating 94V-0
- * Moisture Sensitivity: Level 3 per J-STD-020
- * Terminal Connections: See Diagram Below

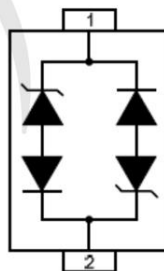
Applications

- * USB Ports
- * Smart Phones
- * Wireless Systems
- * Ethernet 10/100/1000 Base T

Ordering Information

Part Number	Qty per Reel	Reel Size
TPGC03C-TPGC30C	3000	7"

Dimensions and Pin Configuration



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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	350	W
Peak Pulse Current (8/20 μs)	IPP	22-6	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-40 to +85	$^\circ\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^\circ\text{C}$

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

TPGC03C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				3.3	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	4		6	V
Reverse Leakage Current	I_R	$V_{RWM} = 3.3\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)			5	V
Clamping Voltage	V_C	$I_{PP} = 22\text{A}$ (8 x 20 μs pulse)			16	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		1		pF

TPGC05C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6		8	V
Reverse Leakage Current	I_R	$V_{RWM} = 5.0\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)			9	V
Clamping Voltage	V_C	$I_{PP} = 18\text{A}$ (8 x 20 μs pulse)			19	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		1		pF

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

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TPGC08C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				8.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	8.5			V
Reverse Leakage Current	I_R	$V_{RWM} = 8\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)			13	V
Clamping Voltage	V_C	$I_{PP} = 18\text{A}$ (8 x 20 μs pulse)			19.5	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		1		pF

TPGC12C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				12.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	13.3			V
Reverse Leakage Current	I_R	$V_{RWM} = 12\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)			18	V
Clamping Voltage	V_C	$I_{PP} = 12\text{A}$ (8 x 20 μs pulse)			29	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		1		pF

TPGC15C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				15.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	16.7			V
Reverse Leakage Current	I_R	$V_{RWM} = 15\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)			22	V
Clamping Voltage	V_C	$I_{PP} = 10\text{A}$ (8 x 20 μs pulse)			32	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		1		pF

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

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TPGC18C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				18.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	20			V
Reverse Leakage Current	I_R	$V_{RWM} = 18\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)			26	V
Clamping Voltage	V_C	$I_{PP} = 10\text{A}$ (8 x 20 μs pulse)			35	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		1		pF

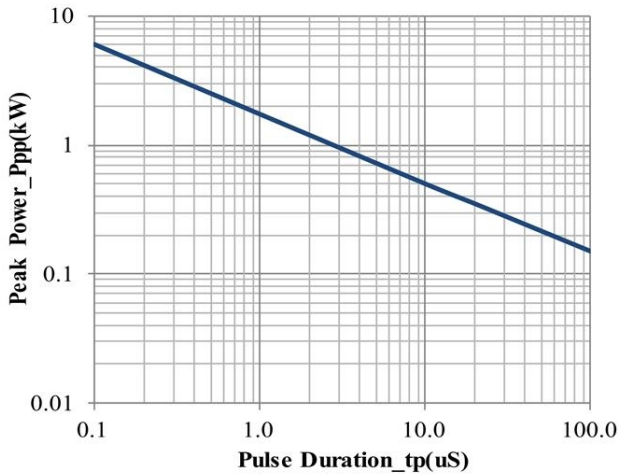
TPGC24C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				24.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	26.7			V
Reverse Leakage Current	I_R	$V_{RWM} = 24\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)			43	V
Clamping Voltage	V_C	$I_{PP} = 8\text{A}$ (8 x 20 μs pulse)			55	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		1		pF

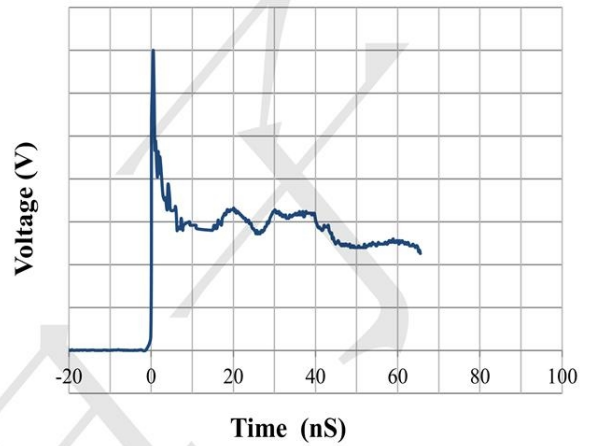
TPGC30C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				30.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	33.3			V
Reverse Leakage Current	I_R	$V_{RWM} = 30\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)			50	V
Clamping Voltage	V_C	$I_{PP} = 6\text{A}$ (8 x 20 μs pulse)			75	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		1		pF

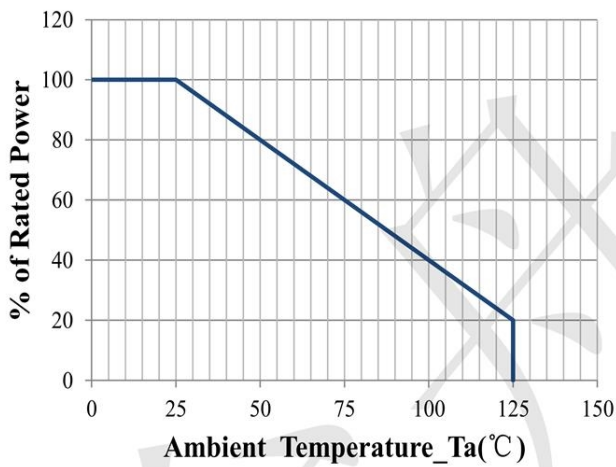
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



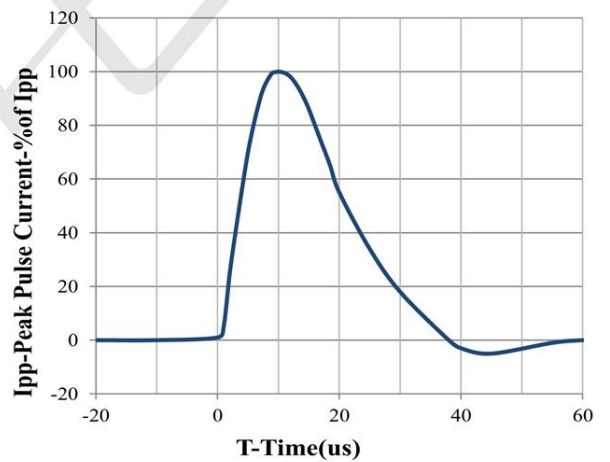
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

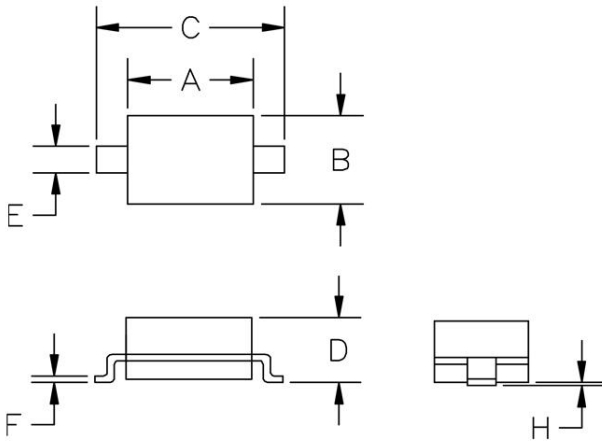


Power Derating Curve



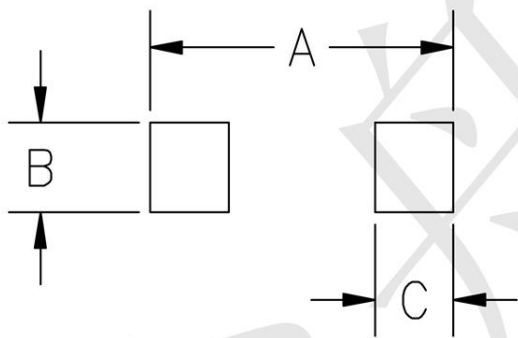
8 X 20us Pulse Waveform

SOD-323 Package Outline Drawing



SYM	DIMENS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.50	1.80	0.060	0.071
B	1.20	1.40	0.045	0.054
C	2.30	2.70	0.090	0.107
D	-	1.10	-	0.043
E	0.30	0.40	0.012	0.016
F	0.10	0.25	0.004	0.010
H	-	0.10	-	0.004

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
A	3.15	0.120
B	0.80	0.031
C	0.80	0.031