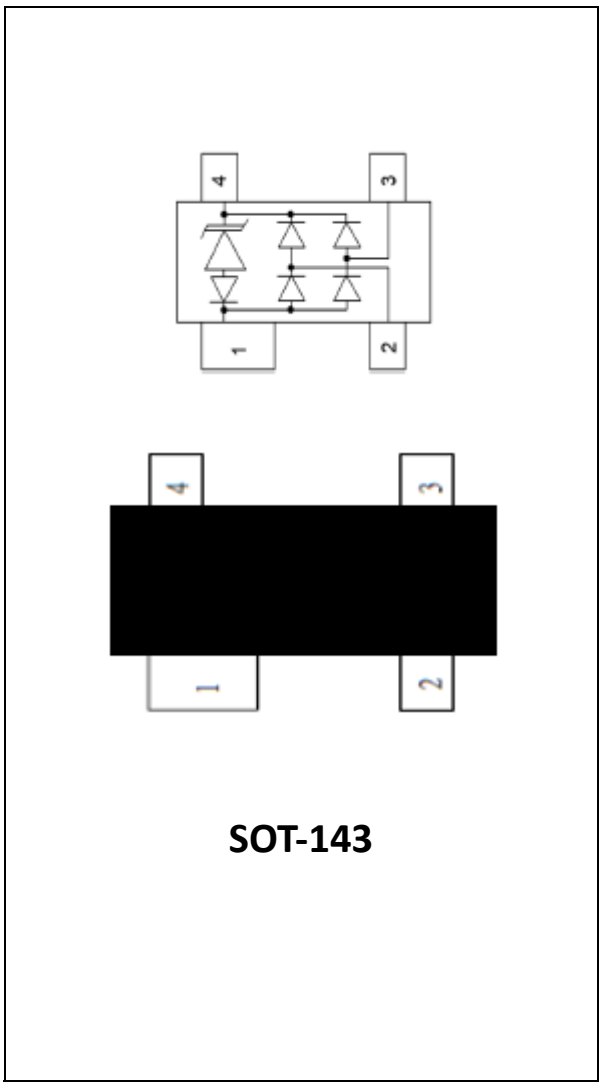
1- Line, Uni-directional, Transient Voltage Suppressor



Features

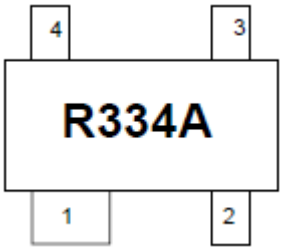
- Stand-off voltage: 3.3V Max
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±30kV (contact)
  IEC61000-4-5(surge): 22A (8/20μs)
- Low leakage current
- Ultra-low capacitance: CJ = 3 pF typ
- Low clamping voltage
- RoHS Compliant

Applications

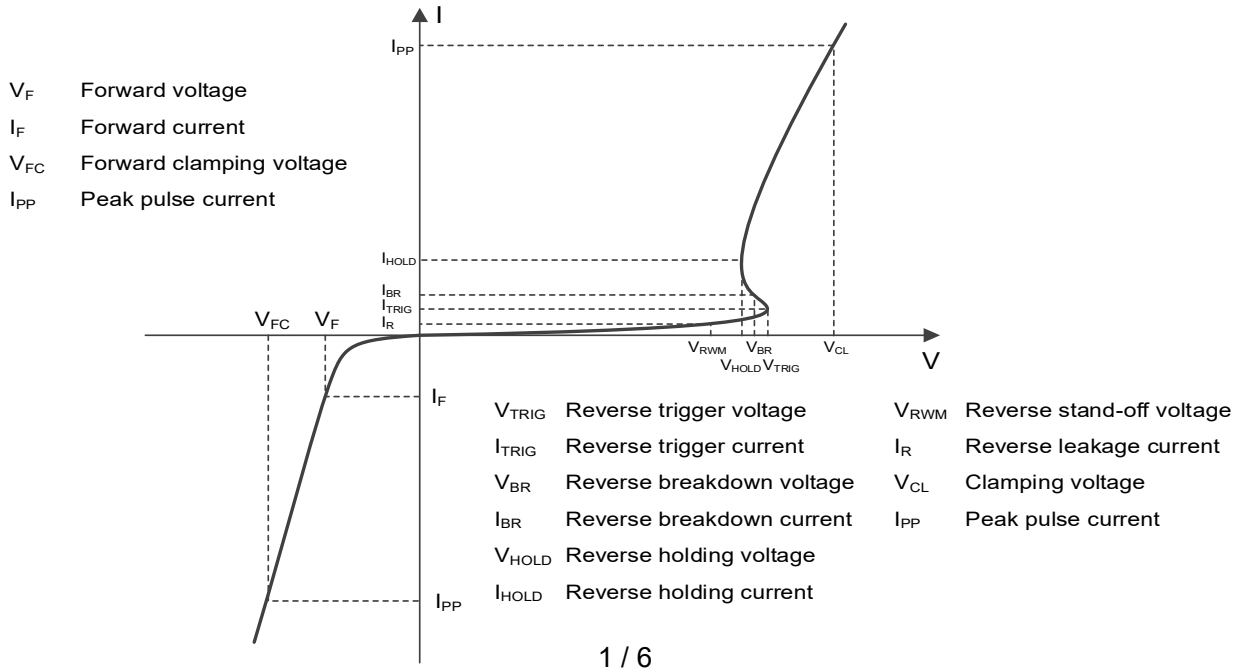
- Video Line Protection
- Wireless Systems
- Ethernet 10BaseT
- I2C Bus Protection
- Portable Instrumentation
- LAN/WAN equipment
- High-Speed Data Lines
- Multi-Protocol Serial Transceivers
- ISDN S/T Interface

Mechanical Data

- Package: SOT-143
- Case Material: “Green” Molding Compound
- Marking Information: See Below



■Definitions of electrical characteristics



■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power (t_p = 8/20μs)，VCC pin to ground	P_{pk}	420	W
Peak pulse power (t_p = 8/20μs)，any I/O pin to ground	P_{pk}	264	W
Peak pulse current (t_p = 8/20μs)，VCC pin to ground	I_{PP}	35	A
Peak pulse current (t_p = 8/20μs)，any I/O pin to ground	I_{PP}	22	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	KV
ESD according to IEC61000-4-2 contact discharge		±30	
Junction temperature	T_J	-55~125	℃
Storage temperature	T_{STG}	-55~150	℃

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V	Any I/O Pin to ground			3.3
Reverse breakdown voltage	$V_{(BR)}$	V	I_T = 1mA,	4		
Reverse leakage current	I_R	uA	V_{RWM} = 3.3V,			0.5
Clamping voltage	V_{CL}	V	I_{PP} = 35A, t_p = 8/20μs，VCC pin to ground		.	12
		V	I_{PP} = 1A, t_p = 8/20μs，any I/O pin to ground		.	7
		V	I_{PP} = 22A, t_p = 8/20μs any I/O pin to ground			12
Junction capacitance	CJ	pF	VR = 0V, f = 1MHz, VCC pin to ground		90	
		pF	VR = 0V, f = 1MHz,any I/O pin to ground		3	.

Notes:

(1). TLP parameter: Z0 = 50Ω, tp = 100ns, tr = 2ns, averaging window from 60ns to 80ns. RDYN is calculated from 4A to 16A.

(2). Contact discharge mode, according to IEC61000-4-2.

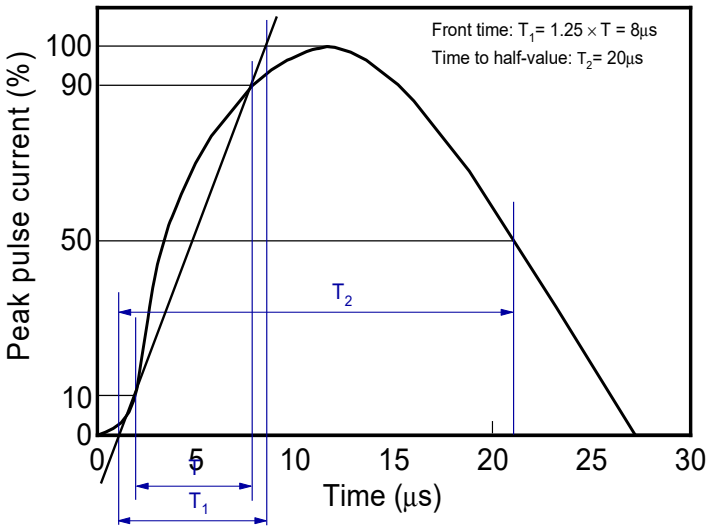
(3). Non-repetitive current pulse, according to IEC61000-4-5

■Ordering Information (Example)

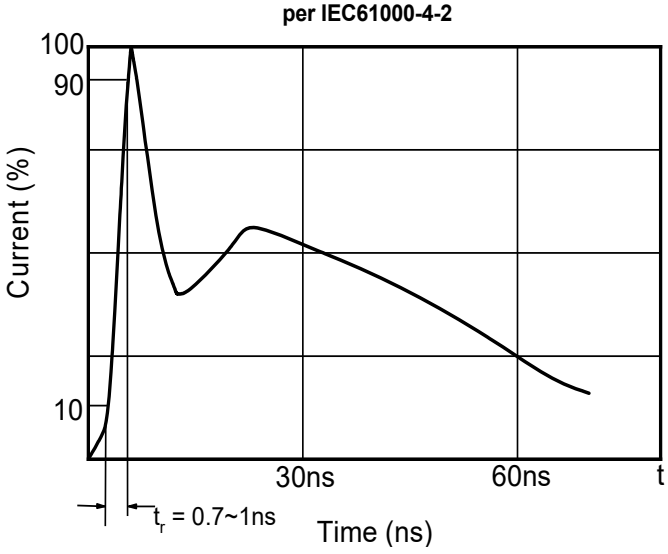
PREFERED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SR33	F1	Approximate 12	3000	30000	120000	7 reel

■ Characteristics (Typical)

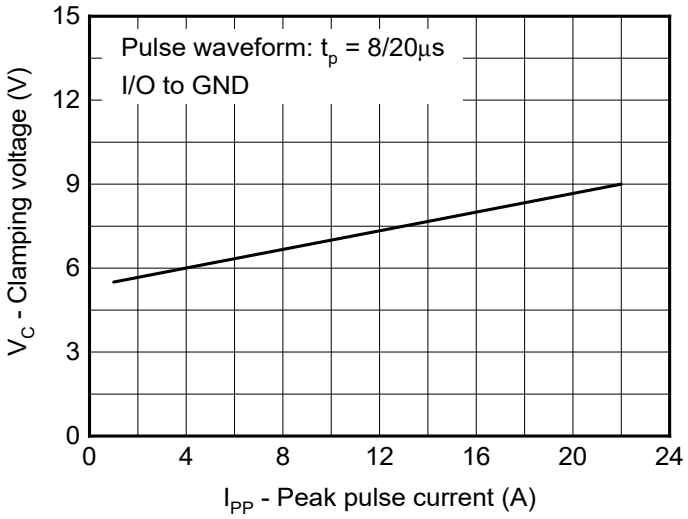
8/20μs waveform per IEC61000-4-5



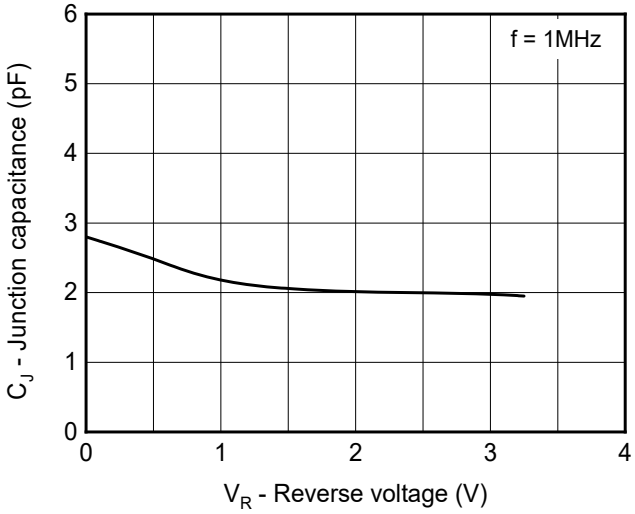
Contact discharge current waveform per IEC61000-4-2



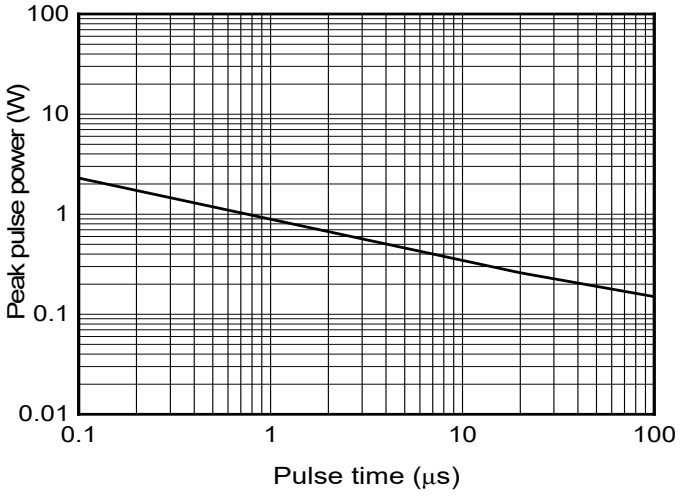
Clamping voltage vs. Peak pulse current



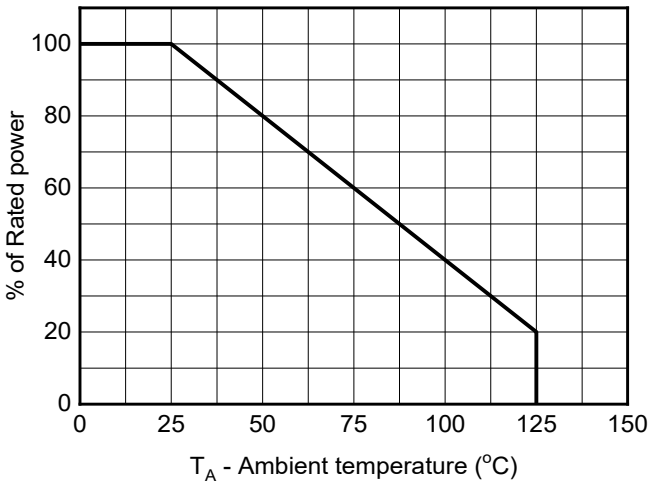
Capacitance vs. Reverse voltage



Non-repetitive peak pulse power vs. Pulse time

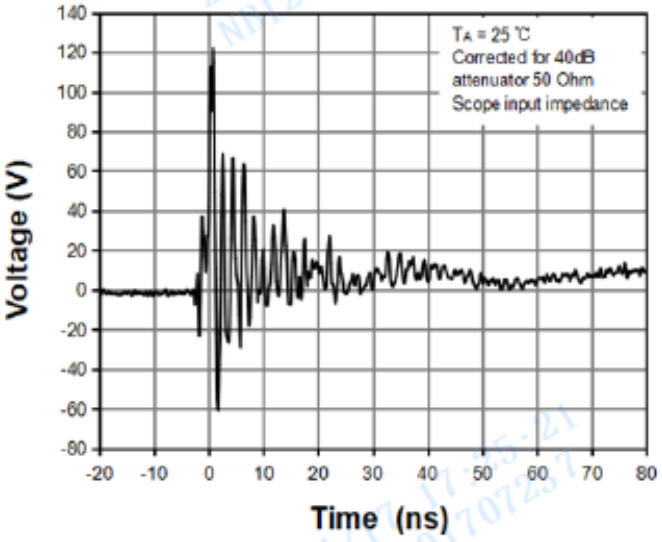


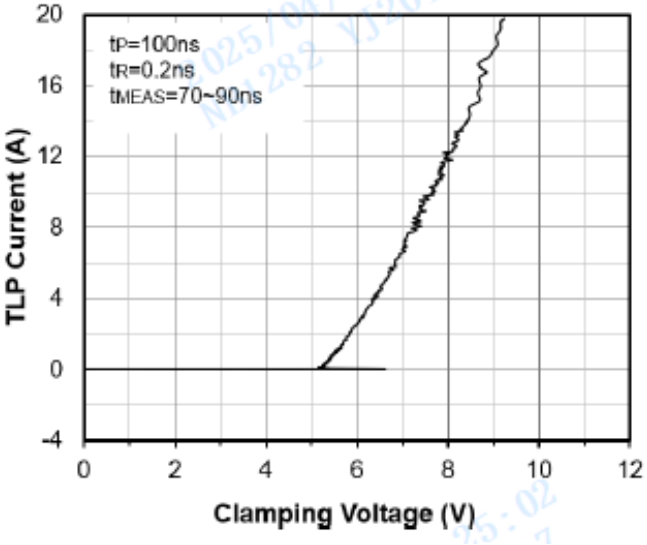
Power derating vs. Ambient temperature



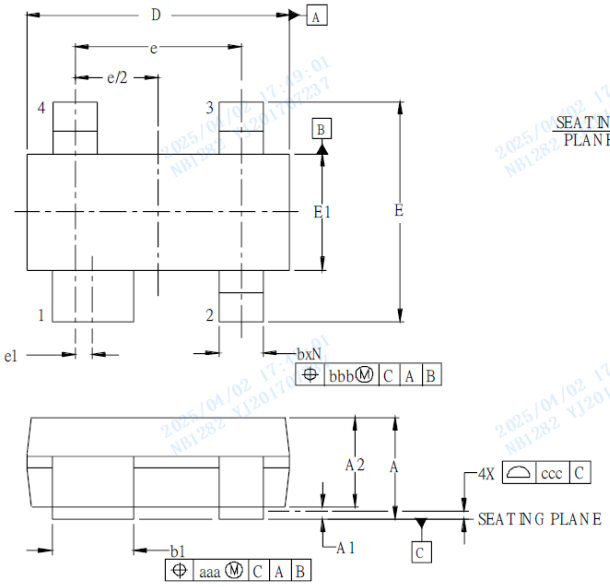
ESD clamping
(8kV contact discharge per IEC61000-4-2)

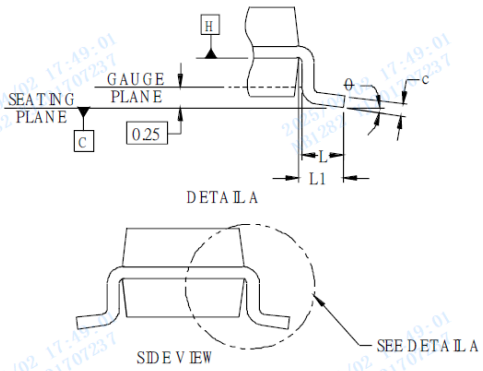
TLP Measurement





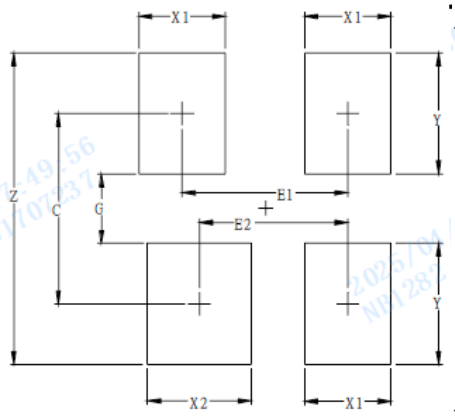
■ Outline Dimensions





DIMENSIONS						
DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.031	-	.048	0.80	-	1.22
A1	.000	-	.006	0.013	-	0.15
A2	.029	.035	.042	0.75	0.90	1.07
b	.011	-	.020	0.30	-	0.51
b1	.029	-	.037	0.76	-	0.94
c	.003	-	.008	0.08	-	0.20
D	.110	.114	.120	2.80	2.90	3.04
E	.082	.093	.104	2.10	2.37	2.64
E1	.047	.051	.055	1.20	1.30	1.40
e	.075			1.92 BSC		
e1	.008			0.20 BSC		
L	.015	.020	.024	0.40	0.50	0.60
L1	(.021)			(0.54)		
N	4			4		
θ	0°	-	8°	0°	-	8°
aaa	.006			0.15		
bbb	.008			0.20		
ccc	.004			0.10		

■ Soldering Footprint



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.20	0.087
E1	1.92	0.076
E2	1.72	0.068
G	0.80	0.031
X1	1.00	0.039
X2	1.20	0.047
Y	1.40	0.055
Z	3.60	0.141

Notes:
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met

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