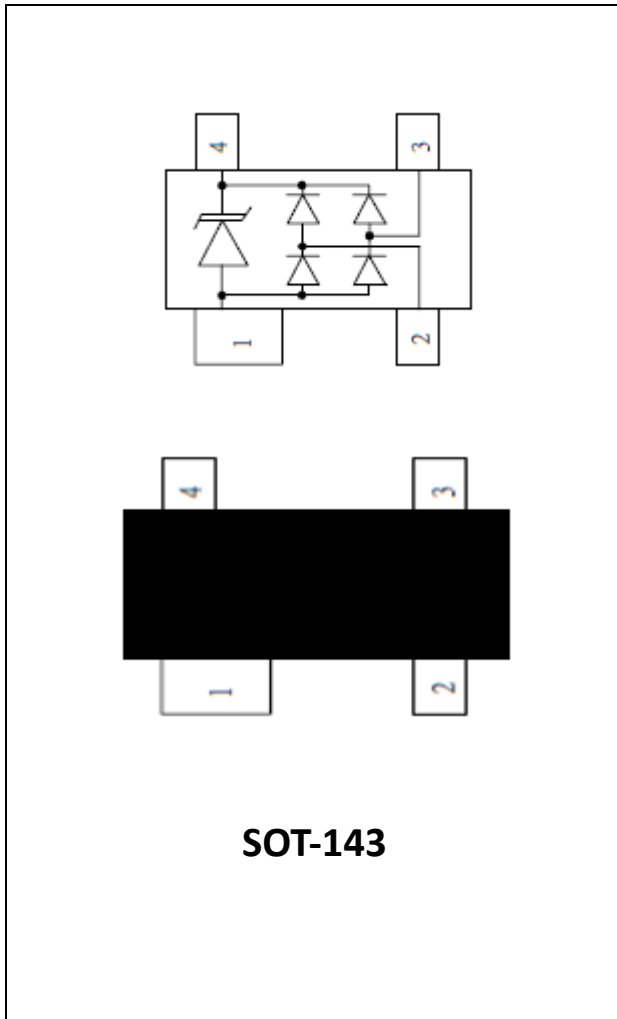


## 1- Line, Uni-directional, Transient Voltage Suppressor



### Features

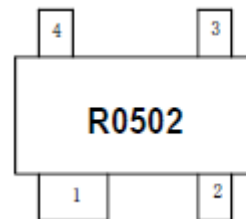
- Stand-off voltage: 5V Max
- Transient protection for each line according to  
IEC61000-4-2(ESD):  $\pm 20\text{kV}$  (contact)  
IEC61000-4-5(surge): 5A (8/20 $\mu\text{s}$ )
- Low leakage current
- Ultra-low capacitance:  $C_J = 0.3\text{pF}$  typ
- Low clamping voltage
- RoHS Compliant

### Applications

- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Personal Digital Assistants
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players, Keypads, Side Keys, LCD
- USB 2.0

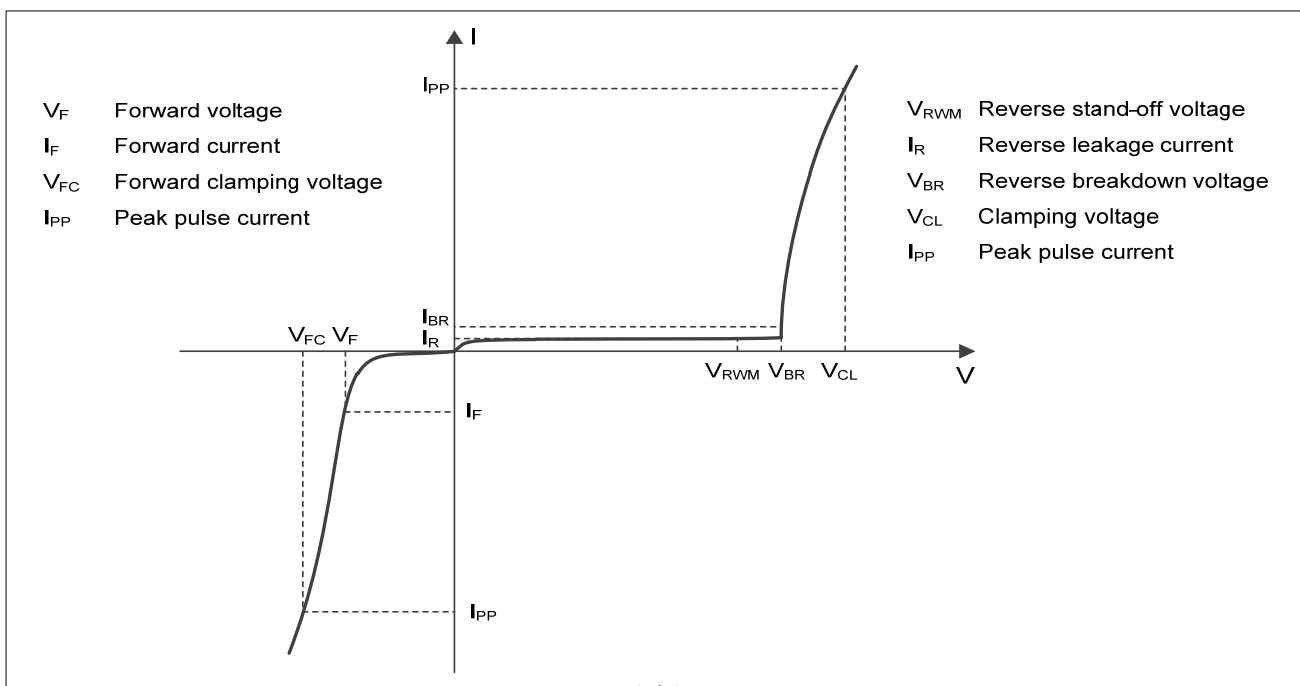
### Mechanical Data

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



R0502 = Device Marking Code  
Pin1 is ground

### ■ Definitions of electrical characteristics





# ESDSL0502S1

## ■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ( $t_p = 8/20\mu s$ )	$P_{pk}$	75	W
Peak pulse current ( $t_p = 8/20\mu s$ )	$I_{PP}$	5	A
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 25$	KV
ESD according to IEC61000-4-2 contact discharge		$\pm 20$	
Junction temperature	$T_J$	-55~125	$^{\circ}C$
Storage temperature	$T_{STG}$	-55~150	$^{\circ}C$

## ■Electrical Characteristics ( $T_a=25^{\circ}C$ Unless otherwise specified)

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	$V_{RWM}$	V				5
Reverse leakage current	$I_R$	$\mu A$	$V_{RWM} = 5V,$			0.5
Reverse breakdown voltage	$V_{(BR)}$	V	$I_T = 1mA,$	6		
Clamping voltage	$V_{CL}$	V	$I_{PP} = 1A, t_p = 8/20\mu s$			10
		V	$I_{PP} = 5A, t_p = 8/20\mu s$			15
Junction capacitance	CJ	$\mu F$	$V_R = 0V, f = 1MHz, \text{between I/O pins}$		0.3	0.4
		$\mu F$	$V_R = 0V, f = 1MHz, \text{any I/O pin to ground}$			0.8

Notes:

- (1). TLP parameter:  $Z_0 = 50\Omega, t_p = 100ns, t_r = 2ns,$  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

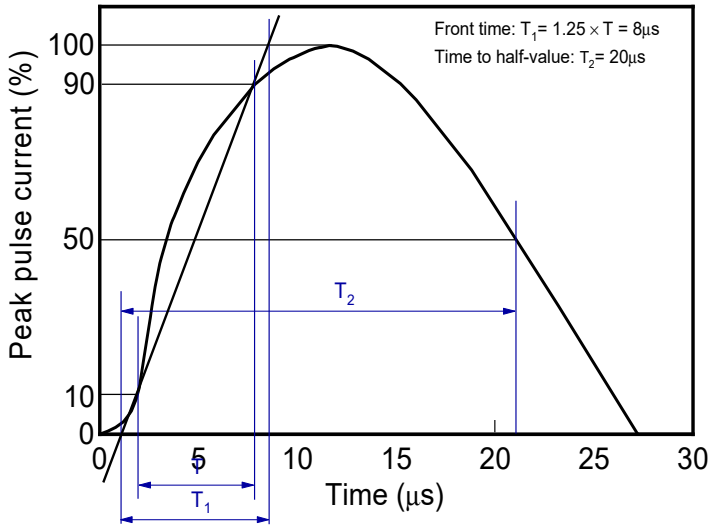
## ■Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESDSL0502S1	F1	Approximate 0.9	3000	30000	120000	7 reel

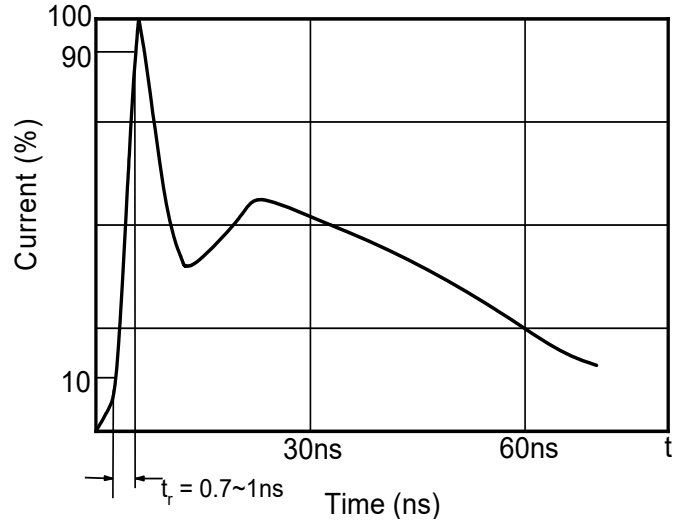


## ■ Characteristics (Typical)

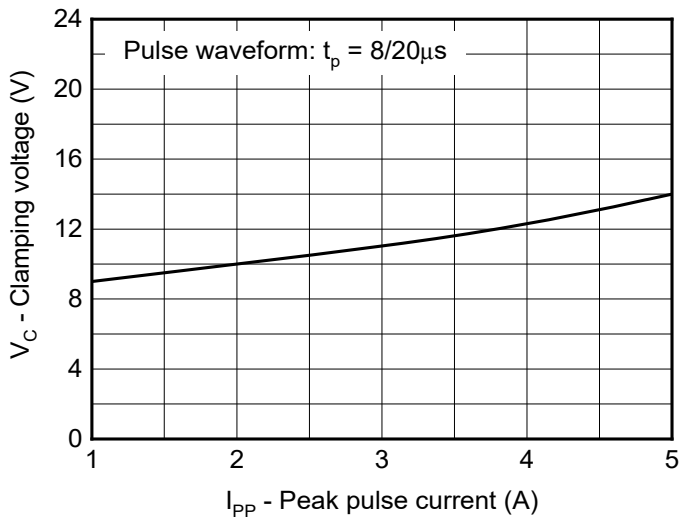
8/20 $\mu$ s waveform per IEC61000-4-5



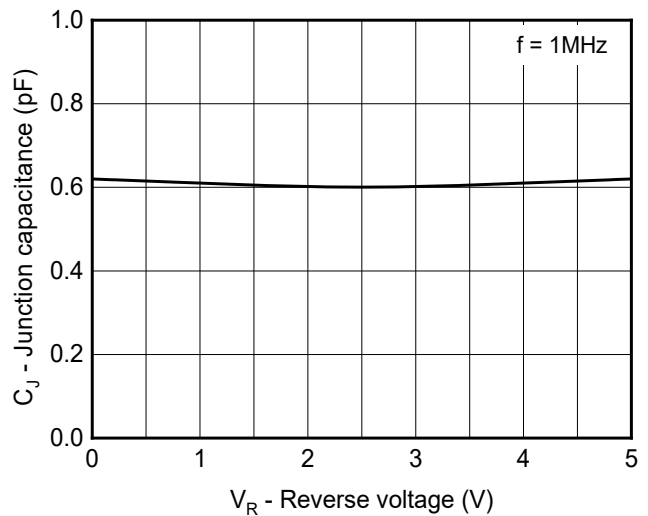
Contact discharge current waveform per IEC61000-4-2



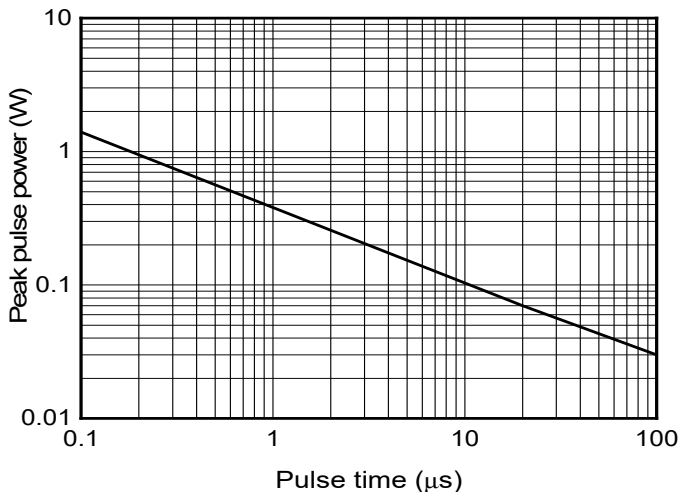
Clamping voltage vs. Peak pulse current



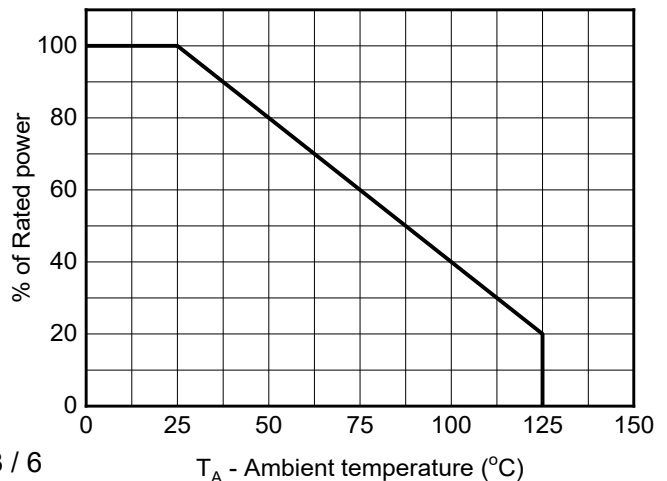
Capacitance vs. Reverse voltage



Non-repetitive peak pulse power vs. Pulse time



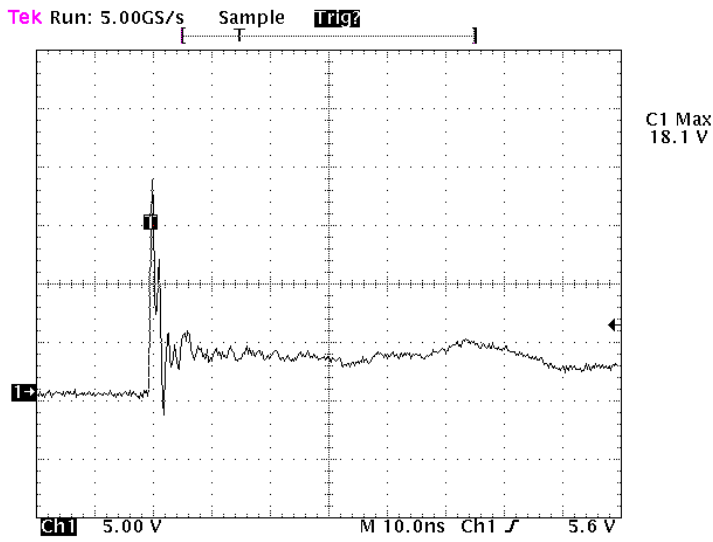
Power derating vs. Ambient temperature



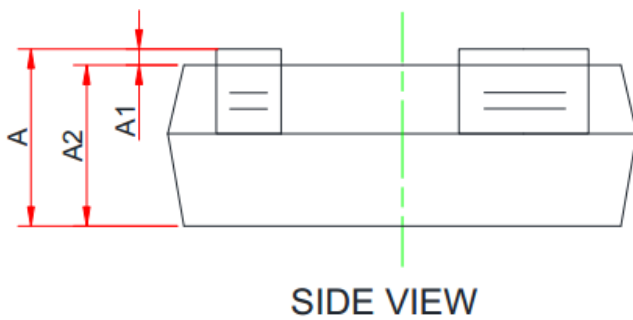
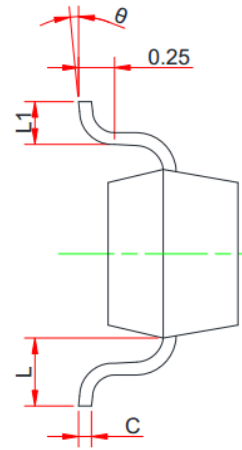
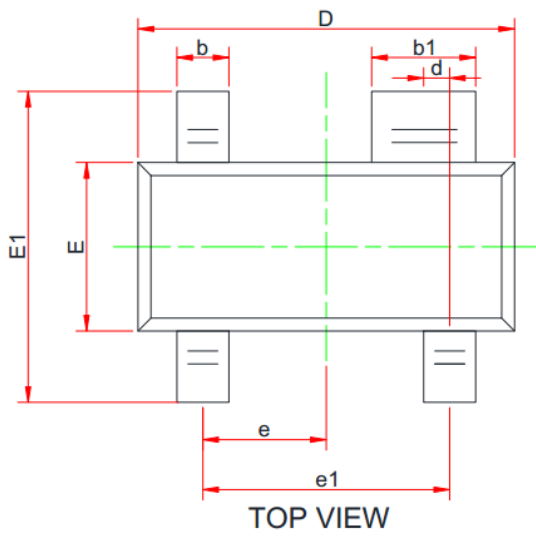


# ESDSL0502S1

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

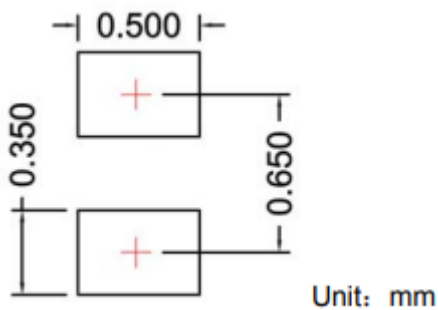


## ■ Outline Dimensions



SYS YM	MILLIMETERS		
	MIN	NOM	MAX
A	0.90	-	1.15
A1	0.00	0.05	0.10
A2	0.90	-	1.05
b	0.30	0.40	0.50
b1	0.75	-	0.90
c	0.08	-	0.15
D	2.80	2.90	3.00
d	0.20 Typ		
E	1.20	1.30	1.40
E1	2.25	2.40	2.55
e	0.95 Typ		
e1	1.80	1.90	2.00
L	0.55 Ref		
L1	0.30	0.40	0.50
θ	0°	-	8°

## ■ Soldering Footprint



### 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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