

FEATURES:

- ✧ 50 Watts peak pulse power per line ($t_p=8/20\mu s$)
- ✧ Protects two I/O lines
- ✧ Low clamping voltage
- ✧ Low operating voltage
- ✧ Low capacitance: <math> < 1.0\text{pF}</math> typical
- ✧ ROHS compliant
- ✧ Suffix "-Q1" for AEC-Q101



SOT-143

MAIN APPLICATIONS

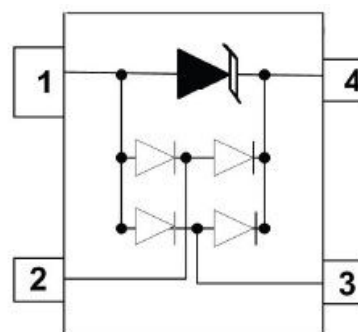
- ✧ Fire wire & USB
- ✧ Sensitive analog inputs
- ✧ Notebook computers
- ✧ Portable electronics
- ✧ LAN/WAN equipment
- ✧ Video line protection
- ✧ Microcontroller input protection

PROTECTION SOLUTION TO MEET

- ✧ IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- ✧ IEC61000-4-4 (EFT) 40A (5/50ns)
- ✧ IEC61000-4-5 (Lightning) 3 A (8/20 μs)

MECHANICAL CHARACTERISTICS

- ✧ JEDEC SOT-143 package
- ✧ Molding compound flammability rating: UL 94V-0
- ✧ Quantity per reel: 3, 000pcs
- ✧ Lead finish: lead free
- ✧ Marking code: E5R or U5V0



PIN Configuration

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 8/20 μs waveform	P_{PP}	50	W
ESD per IEC 61000-4-2 (Air)	V_{ESD}	+/- 15	kV
ESD per IEC 61000-4-2 (Contact)		+/- 8	
Operating junction temperature range	T_J	-55 to +125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	V_{RWM}				5.0	V
Reverse breakdown voltage	V_{BR}	$I_T = 1\text{mA}$	6.0			V
Reverse leakage current	I_R	$V_{RWM} = 5\text{V}$			1	μA
Clamping voltage	V_C	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$			10.5	V
		$I_{PP} = 3\text{A}$, $t_p = 8/20\mu\text{s}$			17	V
Junction capacitance	C_J	$V_{RWM} = 0\text{V}$, $f = 1\text{MHz}$ Any I/O pin to Ground		0.8		pF

RATINGS AND V-I CHARACTERISTICS CURVES ($T_A=25^\circ\text{C}$, unless otherwise noted)

FIG.1: V- I curve characteristics (Uni-directional)

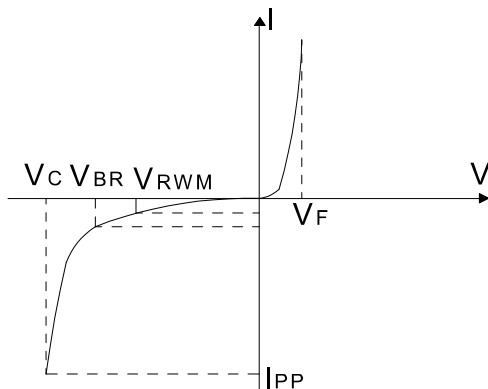


FIG.2: Pulse waveform (8/20 μs)

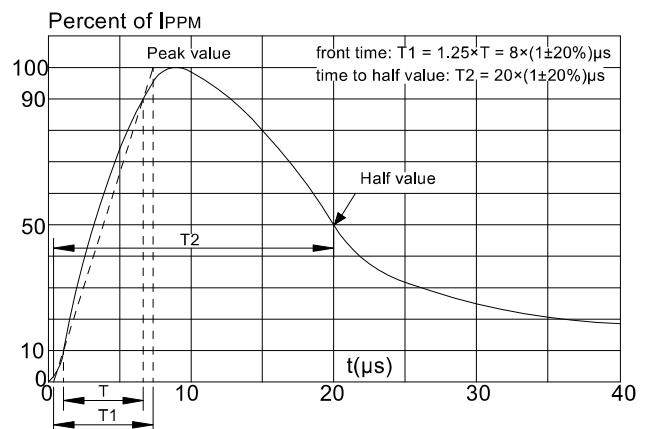


FIG.3: Pulse derating curve

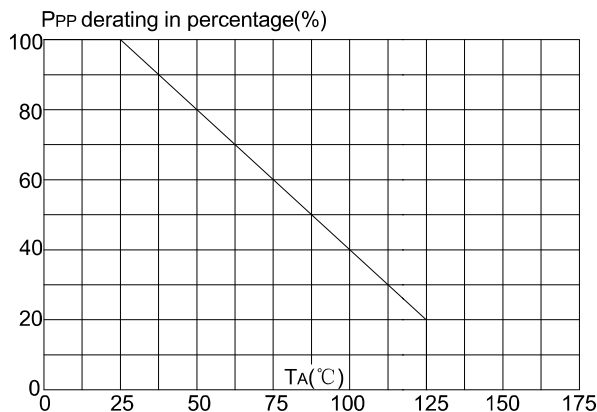
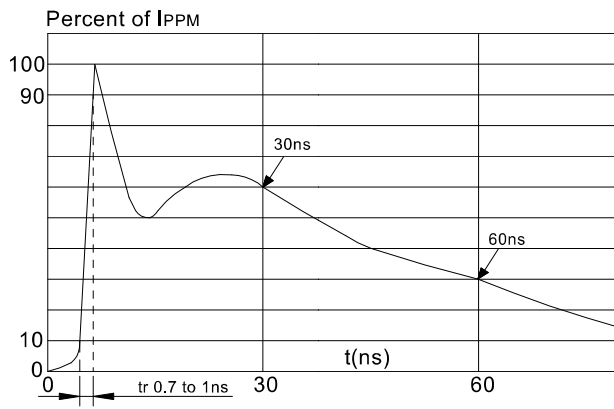
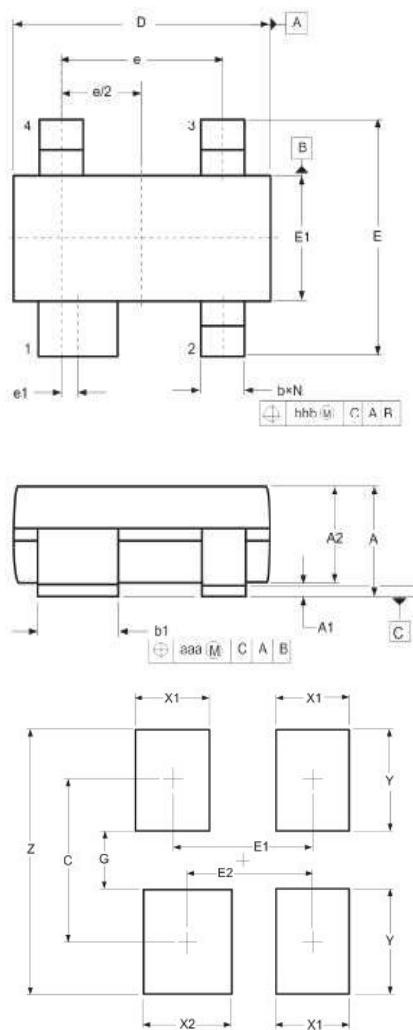


FIG.4: ESD clamping (8KV contact)



PACKAGE MECHANICAL DATA



Land Pattern

Symbol	Millimeter		Inches	
	Min	Max	Min	Max
A	0.80	1.22	0.031	0.048
A1	0.00	0.15	0.000	0.006
A2	0.75	1.10	0.030	0.043
b	0.30	0.51	0.012	0.020
b1	0.75	0.95	0.030	0.037
c	0.05	0.20	0.002	0.008
D	2.70	3.10	0.106	0.122
e	1.80	2.00	0.071	0.079
e1	0.20TYP		0.008TYP	
E	2.10	2.65	0.083	0.104
E1	1.10	1.50	0.043	0.059

Symbol	Millimeter	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