



FEATURES:

- ◇ 400 watts peak pulse power per line ($t_p=8/20\mu s$)
- ◇ Protects four I/O lines
- ◇ Low clamping voltage
- ◇ Low capacitance: 2.0pF typical
- ◇ Low operating voltage: 3.3V
- ◇ RoHS compliant



SOT23-5L

MAIN APPLICATIONS

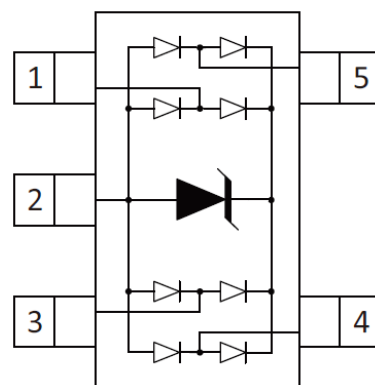
- ◇ Notebooks/desktops/servers
- ◇ 10/100/1000 ethernet
- ◇ Central office equipment
- ◇ LVDS interfaces
- ◇ MagJacks/integrated magnetics

PROTECTION SOLUTION TO MEET

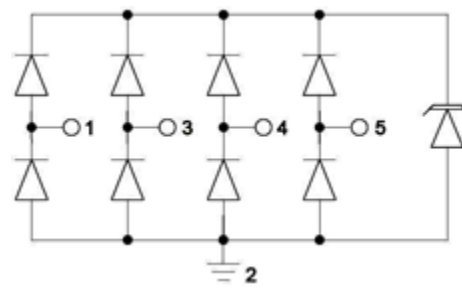
- ◇ IEC61000-4-2 (ESD) $\pm 20kV$ (air), $\pm 20kV$ (contact)
- ◇ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◇ IEC61000-4-5 (Lightning) 25A (8/20 μs)

MECHANICAL CHARACTERISTICS

- ◇ JEDEC SOT23-5L package
- ◇ Molding compound flammability rating: UL 94V-0
- ◇ Quantity per reel: 3, 000pcs
- ◇ Lead finish: lead free
- ◇ Marking code: V33



PIN Configuration



Circuit Diagram

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

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 8/20 μs waveform	P_{PP}	400	W
ESD per IEC 61000-4-2 (Air)	V_{ESD}	+/- 20	kV
ESD per IEC 61000-4-2 (Contact)		+/- 20	
Lead soldering temperature	T_L	260 (10 sec.)	$^{\circ}\text{C}$
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}				3.3	V
Reverse breakdown voltage	V_{BR}	$I_T=2\mu\text{A}$	3.5		5.3	V
Reverse leakage current	I_R	$V_{RWM}=3.3\text{V}$			0.5	μA
Clamping voltage (I/O pin to Ground)	V_C	$I_{PP}=1\text{A}$, $t_P=8/20\mu\text{s}$			5.5	V
		$I_{PP}=10\text{A}$, $t_P=8/20\mu\text{s}$			10	
		$I_{PP}=25\text{A}$, $t_P=8/20\mu\text{s}$			16	
Junction capacitance	C_J	$V_{RWM}=0\text{V}$, $f=1\text{MHz}$ Any I/O pin to Ground		3.8	5	pF
		$V_{RWM}=0\text{V}$, $f=1\text{MHz}$ Between I/O pins		2.0		

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

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

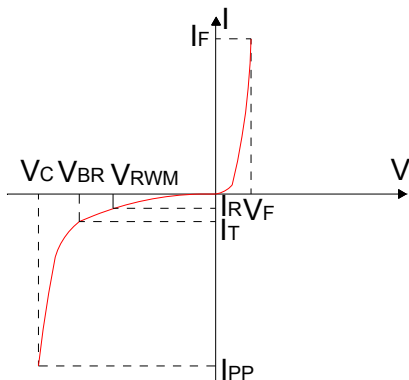


FIG.2: Pulse waveform (8/20 μs)

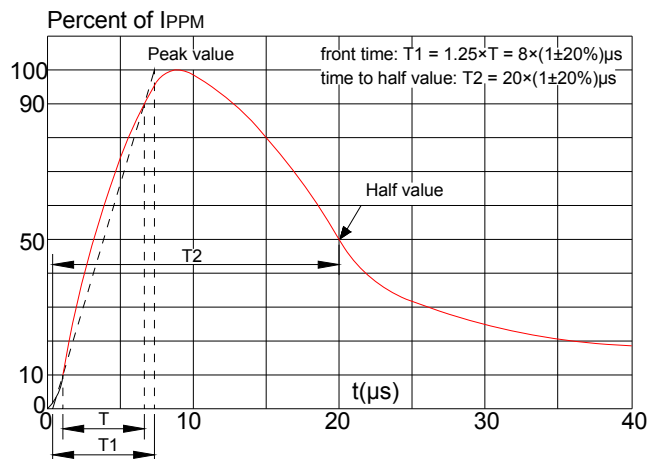


FIG.3: Pulse derating curve

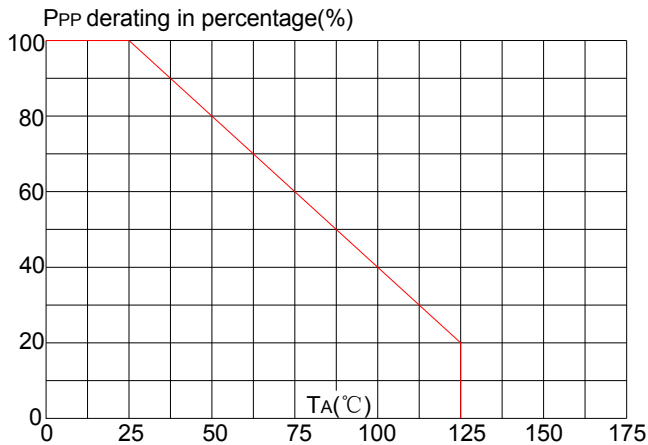
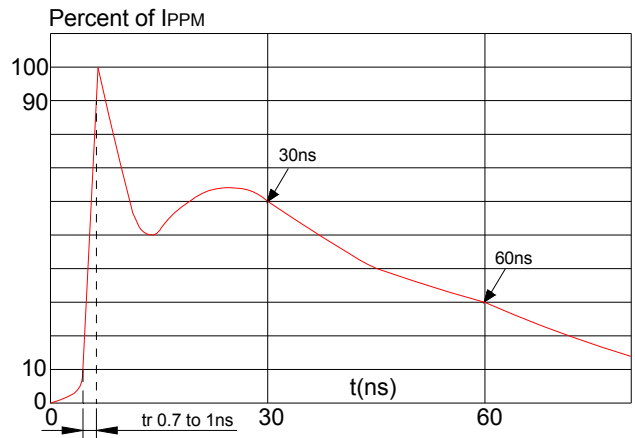
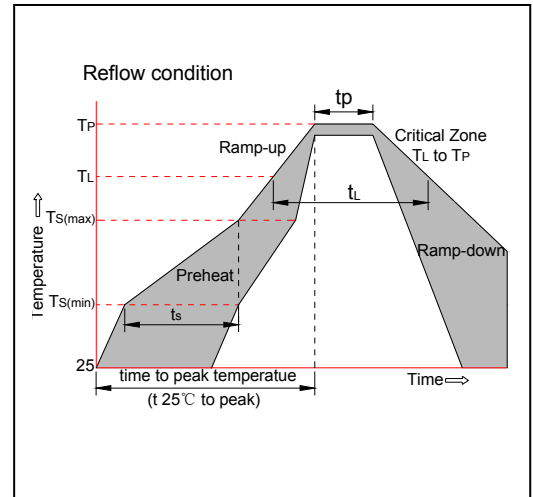


FIG.4: ESD clamping (20kV contact)

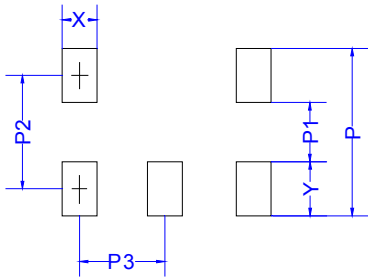
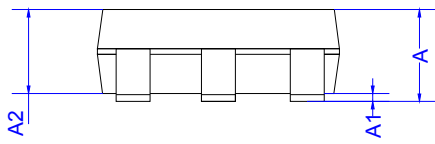
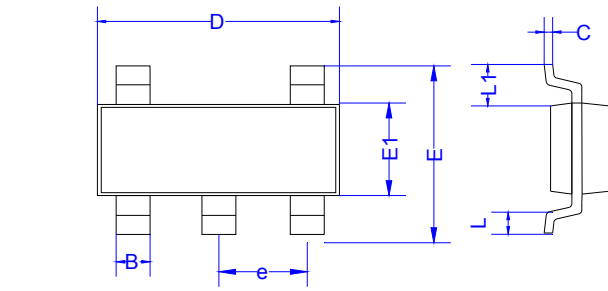


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C



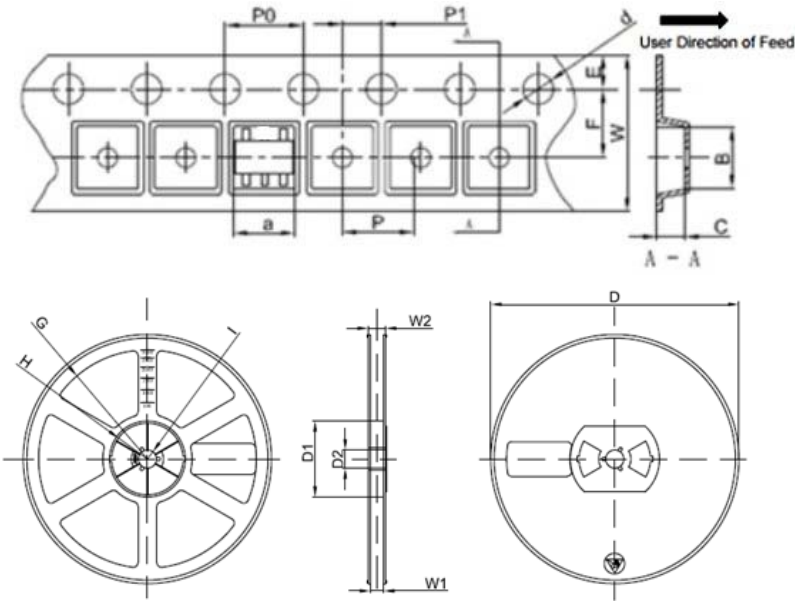
PACKAGE MECHANICAL DATA



Land Pattern

Symbol	Millimeter			Inches		
	Min	Typ	Max	Min	Typ	Max
A	0.90	1.15	1.45	0.035	0.045	0.057
A1	0.00	0.05	0.14	0.000	0.002	0.006
A2	0.90	1.10	1.30	0.035	0.043	0.051
B	0.25	0.35	0.50	0.010	0.014	0.020
C	0.08	0.15	0.22	0.003	0.006	0.009
D	2.79	2.90	3.10	0.110	0.114	0.122
e	0.95BSC			0.037 BSC		
E1	1.50	1.60	1.75	0.059	0.063	0.069
E	2.80BSC			0.110BSC		
L	0.30	0.45	0.60	0.012	0.018	0.024
L1	0.60			0.024		
X	0.60			0.024		
Y	1.10			0.043		
P	3.60			0.142		
P1	1.40			0.055		
P2	2.50			0.098		
P3	0.95			0.037		

TAPE AND REEL SPECIFICATION-SOT23-5L



Symbol	Millimeter	Inches
	Typ.	Typ.
a	3.17	0.125
B	3.23	0.127
C	1.37	0.054
d	Φ1.55	Φ0.061
E	1.75	0.069
F	3.50	0.138
P0	4.00	0.157
P	4.00	0.157
P1	2.00	0.079
W	8.00	0.315
D	Φ180	Φ7.087
D1	60.00	2.632
D2	13.00	0.512
G	R78.00	R3.071
H	R25.60	R1.008
I	R6.50	R0.256
W1	9.50	0.374
W2	13.10	0.516

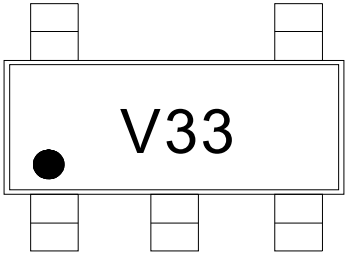
Packaging Description:

SOT23-5L parts are shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat activated adhesive in nature)primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000units per 7" or 17.8cm diameter reel. The reels are clear in color and made of polystyrene plastic(anti-static coated).

ORDERING INFORMATION

OUTLINE	PACKAGE TYPE	QUANTITY REEL	DESCRIPTION
TAPING	SOT23-5L	3,000	7 inch reel pack

MARKING CODE

Part Number	Marking Code
JEU3354S	 <p>The diagram shows a rectangular package with four pins (two on top, two on bottom). A central rectangle contains the marking code 'V33' and a solid black dot to its left.</p>

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