



# SE05S1AMK

## ESD PROTECTION DIODE

### FEATURES

- IEC61000-4-2 (ESD)  $\pm 15\text{kV}$  (air),  $\pm 8\text{kV}$  (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- Low Clamping Voltage
- Low leakage current
- Working Voltage 5V
- Suffix " H " indicated Halogen-free part, ex.SE05S1AMKIH

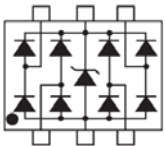
### APPLICATIONS

- Digital Visual Interface (DVI)
- 10/100/1000 Ethernet
- USB 1.1/2.0/OTG
- IEEE 1394 Firewire Ports
- Projection TV Monitors and Flat Panel Displays
- Set Top Box
- Projection TV

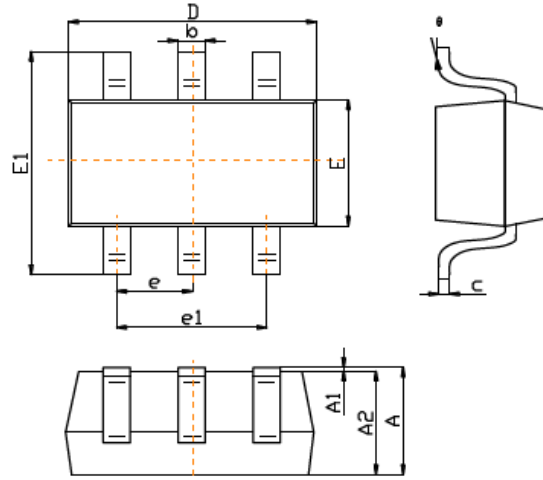
### MECHANICAL DATA

Case : SOT-23-6

### PIN CONFIGURATION



### OUTLINE DRAWING AND DIMENSION



Dimensions	Unit (mm)		Unit (inch)	
	MIN.	MAX.	MIN.	MAX.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 (BSC.)		0.037 (BSC.)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
$\theta$	0	8°	0	8°

### Maximum Ratings (Rating at 25°C ambient temperature unless otherwise specified)

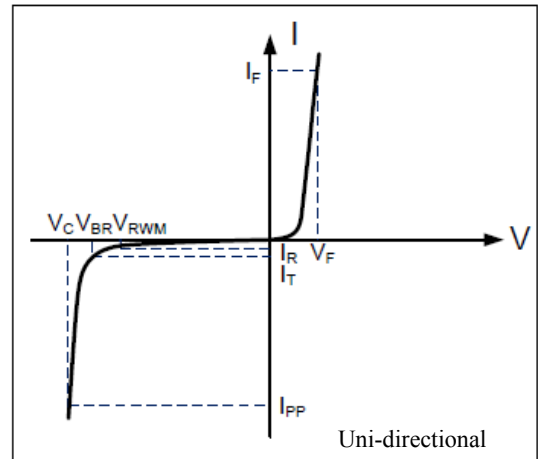
Parameter	Symbol	Value	Units
Peak Pulse Power (tp = 8/20 $\mu$ s)	P <sub>PP</sub>	50	W
Peak Pulse Current (tp=8/20 $\mu$ s waveform)	I <sub>PP</sub>	4	A
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	15	kV
ESD per IEC 61000-4-2 (Contact)		8	
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C



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Symbol	Parameter
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current for Reverse Breakdown
$V_C$	Clamping Voltage @ $I_{PP}$
$I_{PP}$	Maximum Reverse Peak Pulse Current
$C_j$	Junction Capacitance
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$



### Electrical Characteristics ( $T_{amb}=25^{\circ}C$ Unless Otherwise Specified)

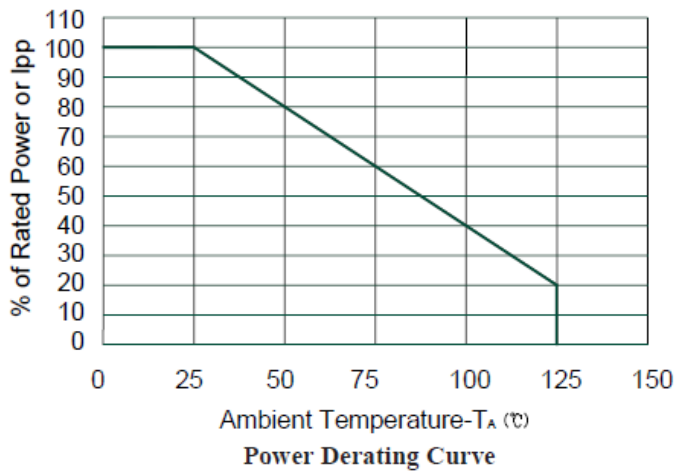
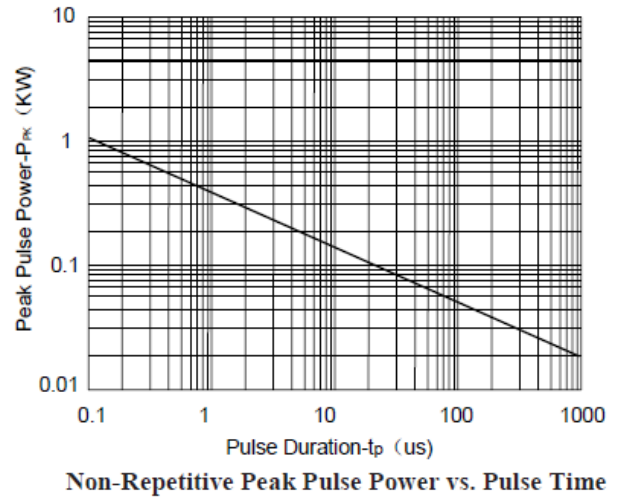
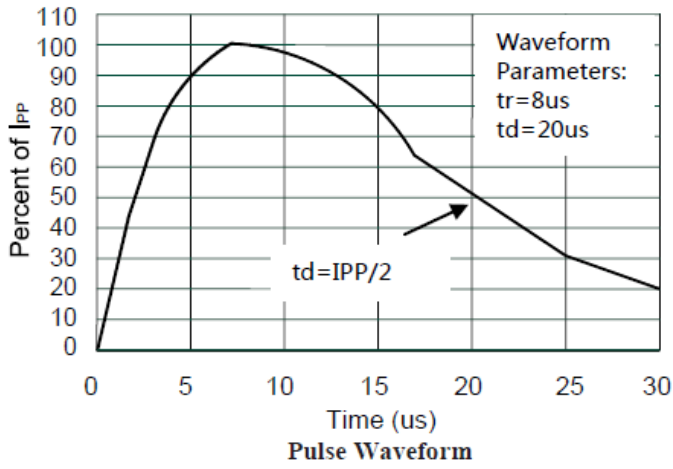
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Units
Reverse Working Voltage	Any I/O to Ground	$V_{RWM}$	-	-	5.0	V
Reverse Breakdown Voltage	$I_T = 1mA$ , Any I/O to Ground	$V_{BR}$	6.0	-	-	V
Reverse Leakage Current	$V_{RWM} = 5V$ , Any I/O to Ground	$I_R$	-	-	1.0	$\mu A$
Diode Forward Voltage	$I_F = 15mA$	$I_F$	-	0.85	1.20	V
Clamping Voltage	$I_{PP} = 1A$ , $t_p = 8/20\mu s$ , Any I/O pin to Ground	$V_C$	-	-	9	V
	$I_{PP} = 3A$ , $t_p = 8/20\mu s$ , Any I/O pin to Ground		-	-	11	
Junction Capacitance	$V_R = 0V$ , $f = 1MHz$ , between I/O pins	$C_j$	-	0.35	0.45	pF
	$V_R = 0V$ , $f = 1MHz$ , Any I/O pin to Ground		-	0.8	1.0	



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### RATINGS AND CHARACTERISTIC CURVES

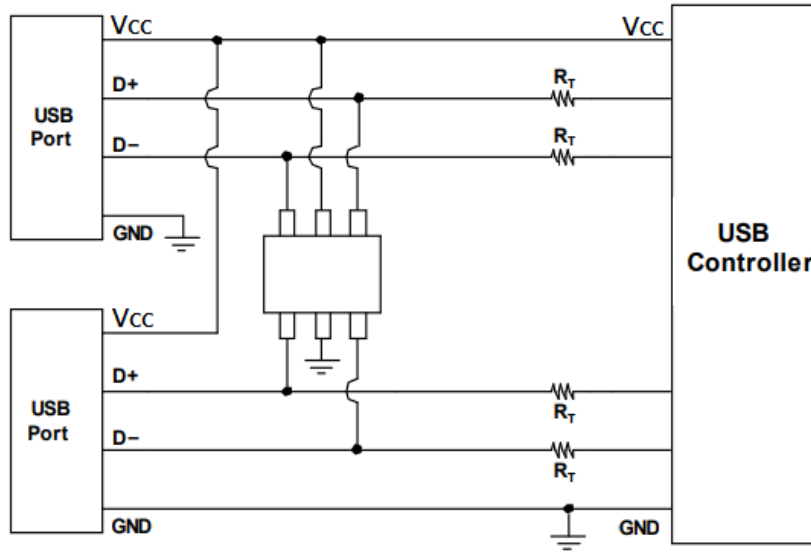




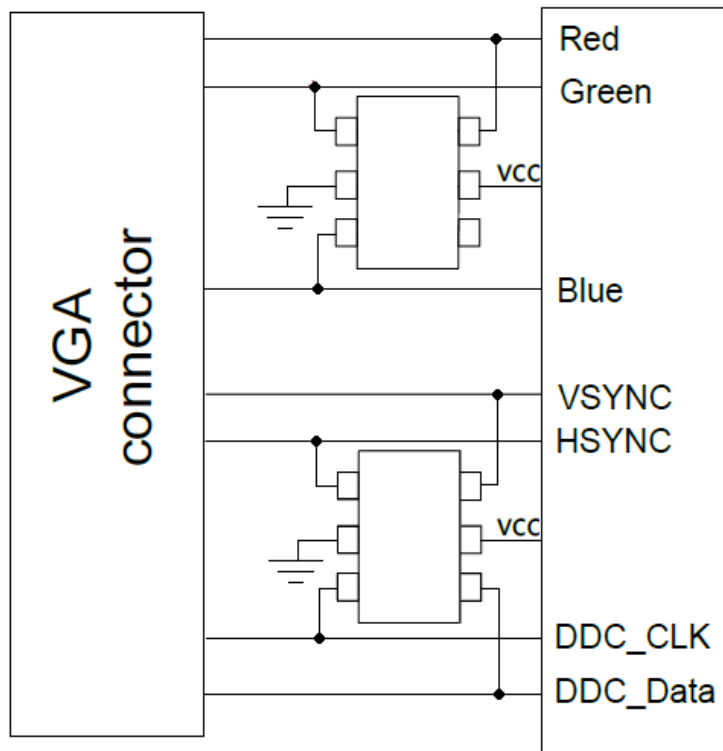
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## ESD PROTECTION DIODE

### APPLICATIONS



ESD protection for USB port



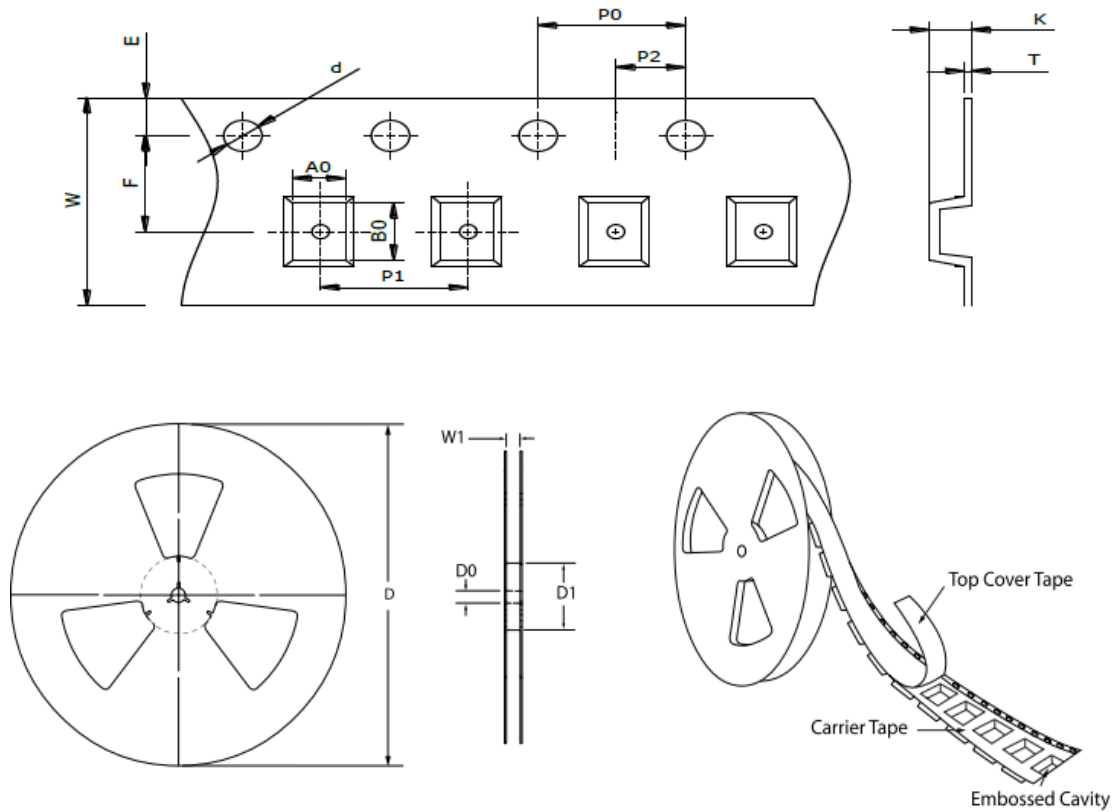
ESD protection for VGA connector



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## ESD PROTECTION DIODE

### TAPE & REEL SPECIFICATION



Item	Symbol	SOT-23-6
Carrier width	A <sub>0</sub>	3.10 ± 0.10
Carrier length	B <sub>0</sub>	3.20 ± 0.10
Carrier depth	K	1.10 ± 0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D <sub>0</sub>	13.00 ± 0.20
Reel inner diameter	D <sub>1</sub>	MIN. 54.00
Sprocke hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocke hole pitch	P <sub>0</sub>	4.00 ± 0.10
Punch hole pitch	P <sub>1</sub>	4.00 ± 0.10
Embossment center	P <sub>2</sub>	2.00 ± 0.10
Overall tape thickness	T	0.20 ± 0.05
Tape width	W	8.00 ± 0.20
Reel width	W1	MAX. 13.50

### ORDER INFORMATION

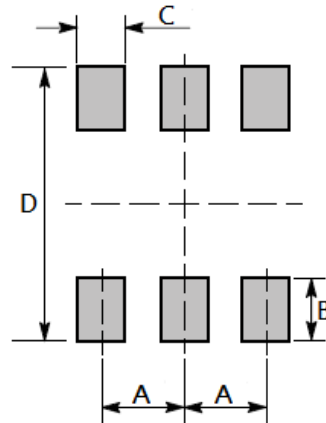
Package	Marking Code	Reel Size	Quantity
SOT-23-6	•V05	7"	3,000



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### SUGGESTED SOLDER PAD LAYOUT



Unit : mm

PACKAGE	A	B	C	D
SOT-23-6	0.95	1.00	0.70	3.40