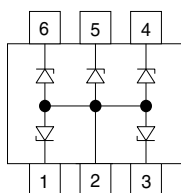
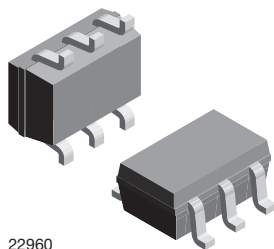


## Five-Line ESD Protection Diode Array in SOT-363

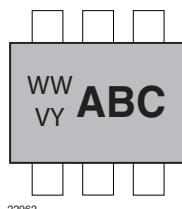


22961



22960

### MARKING (example only)



22962

Bar = cathode marking

X = date code

Y = type code (see table below)

### DESIGN SUPPORT TOOLS AVAILABLE


[3D Models](#)

### FEATURES

- Compact SOT-363 package
- 5-line unidirectional ESD-protection
- Working range 5V to 26 V
- ESD immunity acc. IEC 61000-4-2  
±20kV to ± 30 kV contact discharge  
±20kV to ± 30 kV air discharge
- AEC-Q101 qualified available
- Lead plating: Sn (e3)
  - soldering can be checked by standard vision inspection
  - (AOI = automated optical inspection)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### ORDERING INFORMATION

PART NUMBER (EXAMPLE)	AEC-Q101 QUALIFIED	ENVIRONMENTAL AND QUALITY CODE			ORDERING CODE (EXAMPLE)
		RoHS COMPLIANT + LEAD (Pb)-FREE TERMINATIONS	TIN PLATED	3K PER 7" REEL (8 mm TAPE)	
				MOQ = 15K/BOX	
VESD05A5-06G	-	G	3	-08	VESD05A5-06G-G3-08
VESD05A5-06G	H	G	3	-08	VESD05A5-06GHG3-08

### PACKAGE DATA

DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VESD05A5-06G	SOT-363	D05	7.22 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260°C
VESD12A5-06G		D12				
VESD16A5-06G		D16				
VESD26A5-06G		D26				

**ABSOLUTE MAXIMUM RATINGS VESD05A5-06G**

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	$I_{PPM}$	8.7	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	$P_{PP}$	100	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	$V_{ESD}$	30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		30	kV
Operating temperature	Junction temperature	$T_J$	-55 to +150	$^{\circ}$ C
Storage temperature		$T_{stg}$	-55 to +150	$^{\circ}$ C

**ABSOLUTE MAXIMUM RATINGS VESD12A5-06G**

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	$I_{PPM}$	4.4	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	$P_{PP}$	100	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	$V_{ESD}$	30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		30	kV
Operating temperature	Junction temperature	$T_J$	-55 to +150	$^{\circ}$ C
Storage temperature		$T_{stg}$	-55 to +150	$^{\circ}$ C

**ABSOLUTE MAXIMUM RATINGS VESD16A5-06G**

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	$I_{PPM}$	3.6	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	$P_{PP}$	100	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	$V_{ESD}$	30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		30	kV
Operating temperature	Junction temperature	$T_J$	-55 to +150	$^{\circ}$ C
Storage temperature		$T_{stg}$	-55 to +150	$^{\circ}$ C

**ABSOLUTE MAXIMUM RATINGS VESD26A5-06G**

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	$I_{PPM}$	2.1	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	$P_{PP}$	100	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	$V_{ESD}$	20	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		20	kV
Operating temperature	Junction temperature	$T_J$	-55 to +150	$^{\circ}$ C
Storage temperature		$T_{stg}$	-55 to +150	$^{\circ}$ C

**ELECTRICAL CHARACTERISTICS VESD05A5-06G**(T<sub>amb</sub> = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N <sub>channel</sub>	-	-	1	lines
Reverse stand off voltage	Max. reverse working voltage	V <sub>RWM</sub>	-	-	5	V
Reverse voltage	at I <sub>R</sub> = 1 µA	V <sub>R</sub>	5	-	-	V
Reverse current	at V <sub>R</sub> = 5 V	I <sub>R</sub>	-	0.01	0.1	µA
Reverse breakdown voltage	at I <sub>R</sub> = 1 mA	V <sub>BR</sub>	6.85	7.26	7.65	V
Reverse clamping voltage	at I <sub>PP</sub> = I <sub>PPM</sub> = 8.7 A, t <sub>p</sub> = 8/20 µs	V <sub>C</sub>	-	10.3	11.5	V
Forward clamping voltage	at I <sub>PP</sub> = 1 A, t <sub>p</sub> = 300 µs	V <sub>F</sub>	0.9	1.1	1.2	V
	at I <sub>PP</sub> = I <sub>PPM</sub> = 8.7 A, t <sub>p</sub> = 8/20 µs	V <sub>F</sub>	-	2.2	2.74	V
Dynamic resistance	t <sub>p</sub> = 100 ns (TLP; pin 2-1)	r <sub>dyn</sub>	-	0.2	-	Ω
Capacitance	at V <sub>R</sub> = 0 V; f = 1 MHz	C <sub>D</sub>	53	67	81	pF

**ELECTRICAL CHARACTERISTICS VESD12A5-06G**(T<sub>amb</sub> = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N <sub>channel</sub>	-	-	1	lines
Reverse stand off voltage	Max. reverse working voltage	V <sub>RWM</sub>	-	-	12	V
Reverse voltage	at I <sub>R</sub> = 0.1 µA	V <sub>R</sub>	12	-	-	V
Reverse current	at V <sub>R</sub> = 12 V	I <sub>R</sub>	-	0.01	0.1	µA
Reverse breakdown voltage	at I <sub>R</sub> = 1 mA	V <sub>BR</sub>	13.9	14.7	15.5	V
Reverse clamping voltage	at I <sub>PP</sub> = I <sub>PPM</sub> = 4.4 A, t <sub>p</sub> = 8/20 µs	V <sub>C</sub>	-	20.5	22.7	V
Forward clamping voltage	at I <sub>PP</sub> = 1 A, t <sub>p</sub> = 300 µs	V <sub>F</sub>	0.9	1.1	1.2	V
	at I <sub>PP</sub> = I <sub>PPM</sub> = 4.4 A, t <sub>p</sub> = 8/20 µs	V <sub>F</sub>	-	1.6	1.88	V
Dynamic resistance	t <sub>p</sub> = 100 ns (TLP); pin 2-1	r <sub>dyn</sub>	-	0.4	-	Ω
Capacitance	at V <sub>R</sub> = 0 V; f = 1 MHz	C <sub>D</sub>	26	33	40	pF

**ELECTRICAL CHARACTERISTICS VESD16A5-06G**(T<sub>amb</sub> = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N <sub>channel</sub>	-	-	1	lines
Reverse stand off voltage	Max. reverse working voltage	V <sub>RWM</sub>	-	-	16	V
Reverse voltage	at I <sub>R</sub> = 0.1 µA	V <sub>R</sub>	16	-	-	V
Reverse current	at V <sub>R</sub> = 16 V	I <sub>R</sub>	-	0.01	0.1	µA
Reverse breakdown voltage	at I <sub>R</sub> = 1 mA	V <sub>BR</sub>	17	17.9	18.8	V
Reverse clamping voltage	at I <sub>PP</sub> = I <sub>PPM</sub> = 3.6 A, t <sub>p</sub> = 8/20 µs	V <sub>C</sub>	-	25.3	28	V
Forward clamping voltage	at I <sub>PP</sub> = 1 A, t <sub>p</sub> = 300 µs	V <sub>F</sub>	0.9	1.1	1.2	V
	at I <sub>PP</sub> = I <sub>PPM</sub> = 3.6 A, t <sub>p</sub> = 8/20 µs	V <sub>F</sub>	-	1.5	1.72	V
Dynamic resistance	t <sub>p</sub> = 100 ns (TLP); pin 2-1	r <sub>dyn</sub>	-	0.53	-	Ω
Capacitance	at V <sub>R</sub> = 0 V; f = 1 MHz	C <sub>D</sub>	21	27	33	pF

**ELECTRICAL CHARACTERISTICS VESD26A5-06G**(T<sub>amb</sub> = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N <sub>channel</sub>	-	-	1	lines
Reverse stand off voltage	Max. reverse working voltage	V <sub>RWM</sub>	-	-	26	V
Reverse voltage	at I <sub>R</sub> = 0.1 μA	V <sub>R</sub>	26	-	-	V
Reverse current	at V <sub>R</sub> = 26 V	I <sub>R</sub>	-	< 0.01	0.1	μA
Reverse breakdown voltage	at I <sub>R</sub> = 1 mA	V <sub>BR</sub>	27.6	29.1	30.6	V
Reverse clamping voltage	at I <sub>PP</sub> = I <sub>PPM</sub> = 2.1 A, t <sub>p</sub> = 8/20 μs	V <sub>C</sub>	-	43	48	V
Forward clamping voltage	at I <sub>PP</sub> = 1 A, t <sub>p</sub> = 300 μs	V <sub>F</sub>	0.9	1.1	1.2	V
	at I <sub>PP</sub> = I <sub>PPM</sub> = 2.1 A, t <sub>p</sub> = 8/20 μs	V <sub>F</sub>	-	1.3	1.42	V
Dynamic resistance	t <sub>p</sub> = 100 ns (TLP); pin 2-1	r <sub>dyn</sub>	-	1.9	-	Ω
Capacitance	at V <sub>R</sub> = 0 V; f = 1 MHz	C <sub>D</sub>	14	17.5	21	pF

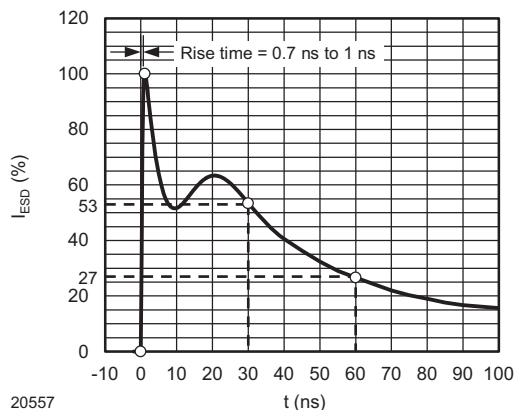


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω / 150 pF)

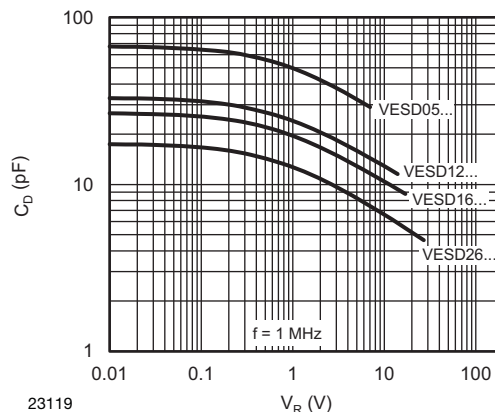


Fig. 4 - Typical Capacitance vs. Reverse Voltage

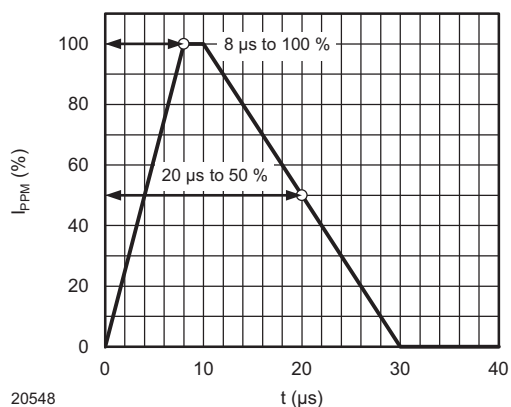


Fig. 2 - 8/20 μs Peak Pulse Current Wave Form acc. IEC 61000-4-5

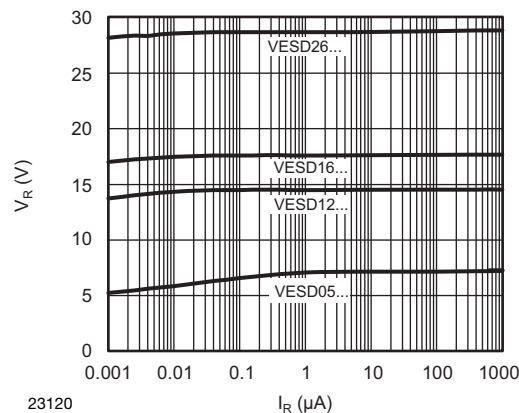


Fig. 5 - Typical Reverse Voltage vs. Reverse Current

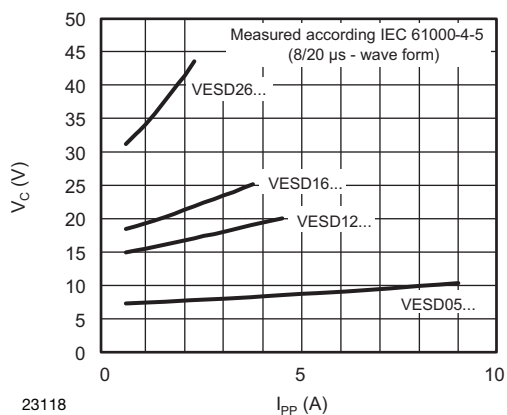


Fig. 3 - Typical Peak Clamping Voltage vs. Peak Pulse Current

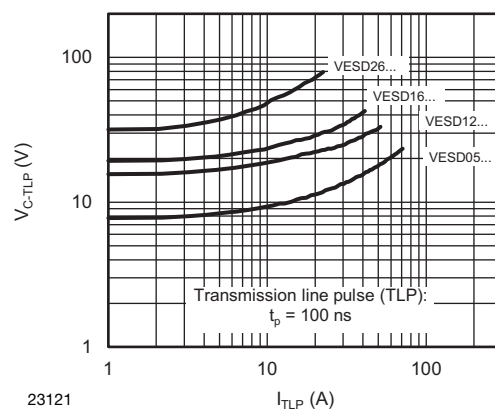
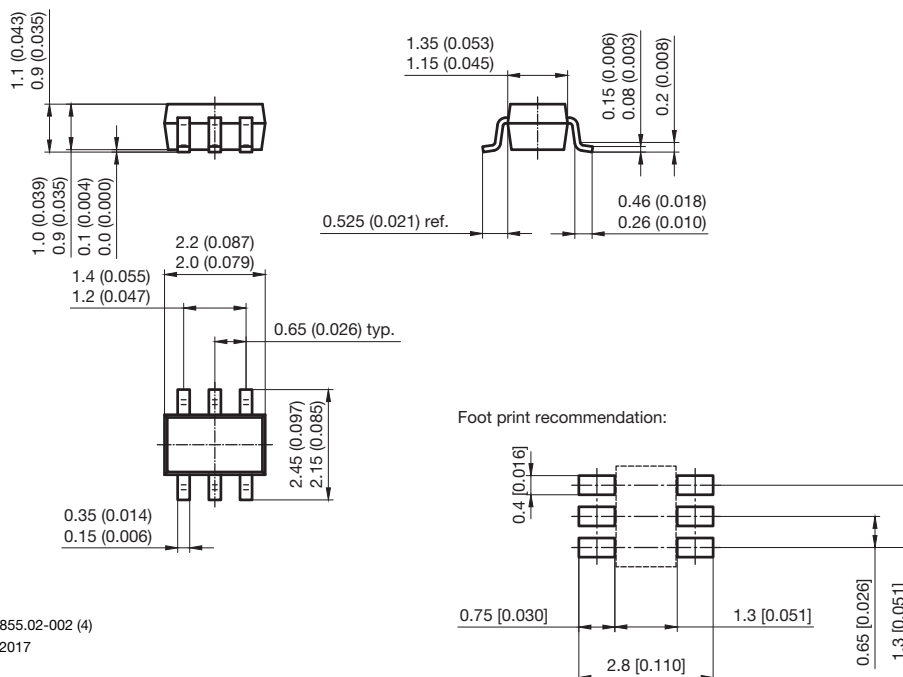


Fig. 6 - Typical Clamping Voltage vs. Peak Pulse Current

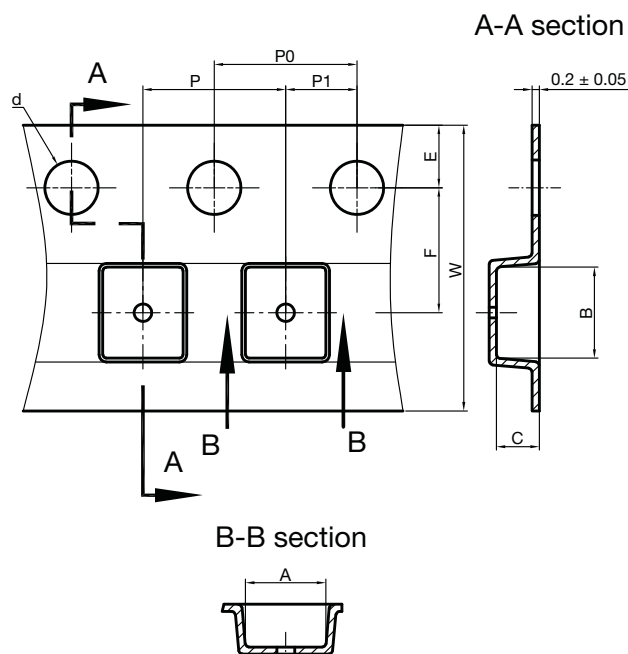


## PACKAGE DIMENSIONS in millimeters (Inches): SOT-363



Document no.: S8-V-3855.02-002 (4)  
Rev.1 - Date: 23. Jun. 2017  
23122

## CARRIER TAPE SOT-363



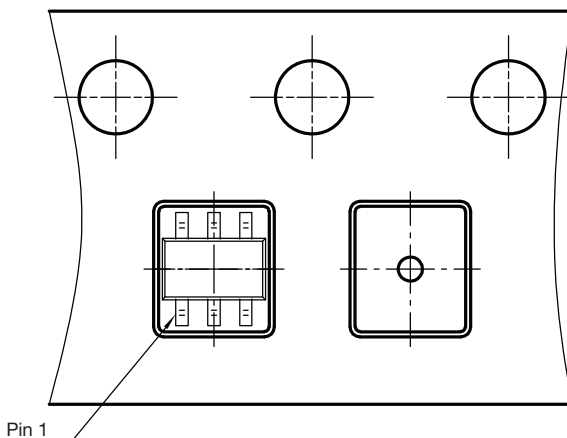
Cummulative tolerances of 10 sprocket holes is ± 0.2 mm

Dimensions in millimeters										
Packaging type	A	B	C	d	E	F	P0	P	P1	W
SOT-363	2.25	2.55	1.20	Ø 1.5	1.75	3.50	4.00	4.00	2.00	8.00
(Tolerance)	± 0.1	± 0.1	± 0.1	+0.1/-0	± 0.1	± 0.1	± 0.05	± 0.1	± 0.05	+0.3/-0.1

Document no. S8-V-3855.02-003 (4)  
Created - Date: 25. April. 2017  
22968



**ORIENTATION IN CARRIER TAPE SOT-363**



Document no. S8-V-3855.02-004 (4)  
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