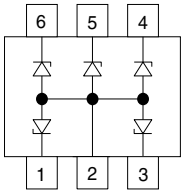
Five-Line ESD Protection Diode Array in SOT-363



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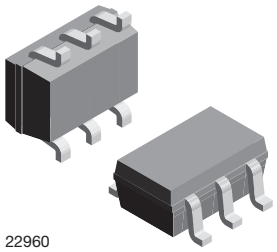
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FEATURES

- 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

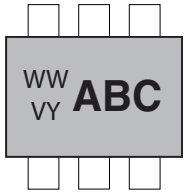
Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

MARKING (example only)



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Bar = cathode marking
X = date code
Y = type code (see table below)

DESIGN SUPPORT TOOLS AVAILABLE

3D Models

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)	
		GREEN		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 µs/single shot	I_{PPM}	8.7	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 µs/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	°C
Storage temperature		T_{stg}	-55 to +150	°C

ABSOLUTE MAXIMUM RATINGS VESD12A5-06G				
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**VALUE**	**UNIT**
Peak pulse current	Acc. IEC 61000-4-5, 8/20 µs/single shot	I_{PPM}	4.4	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 µs/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	°C
Storage temperature		T_{stg}	-55 to +150	°C

ABSOLUTE MAXIMUM RATINGS VESD16A5-06G				
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**VALUE**	**UNIT**
Peak pulse current	Acc. IEC 61000-4-5, 8/20 µs/single shot	I_{PPM}	3.6	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 µs/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	°C
Storage temperature		T_{stg}	-55 to +150	°C

ABSOLUTE MAXIMUM RATINGS VESD26A5-06G				
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**VALUE**	**UNIT**
Peak pulse current	Acc. IEC 61000-4-5, 8/20 µs/single shot	I_{PPM}	2.1	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 µs/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	°C
Storage temperature		T_{stg}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS VESD05A5-06G
(T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand off voltage	Max. reverse working voltage	V_{RWM}	-	-	5	V
Reverse voltage	at I_R = 1 µA	V_R	5	-	-	V
Reverse current	at V_R = 5 V	I_R	-	0.01	0.1	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	6.85	7.26	7.65	V
Reverse clamping voltage	at $I_{PP} = I_{PPM}$ = 8.7 A, t_p = 8/20 µs	V_C	-	10.3	11.5	V
Forward clamping voltage	at I_{PP} = 1 A, t_p = 300 µs	V_F	0.9	1.1	1.2	V
	at $I_{PP} = I_{PPM}$ = 8.7 A, t_p = 8/20 µs	V_F	-	2.2	2.74	V
Dynamic resistance	t_p = 100 ns (TLP; pin 2-1)	r_{dyn}	-	0.2	-	Ω
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	53	67	81	pF

ELECTRICAL CHARACTERISTICS VESD12A5-06G
(T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand off voltage	Max. reverse working voltage	V_{RWM}	-	-	12	V
Reverse voltage	at I_R = 0.1 µA	V_R	12	-	-	V
Reverse current	at V_R = 12 V	I_R	-	0.01	0.1	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	13.9	14.7	15.5	V
Reverse clamping voltage	at $I_{PP} = I_{PPM}$ = 4.4 A, t_p = 8/20 µs	V_C	-	20.5	22.7	V
Forward clamping voltage	at I_{PP} = 1 A, t_p = 300 µs	V_F	0.9	1.1	1.2	V
	at $I_{PP} = I_{PPM}$ = 4.4 A, t_p = 8/20 µs	V_F	-	1.6	1.88	V
Dynamic resistance	t_p = 100 ns (TLP); pin 2-1	r_{dyn}	-	0.4	-	Ω
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	26	33	40	pF

ELECTRICAL CHARACTERISTICS VESD16A5-06G
(T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand off voltage	Max. reverse working voltage	V_{RWM}	-	-	16	V
Reverse voltage	at I_R = 0.1 µA	V_R	16	-	-	V
Reverse current	at V_R = 16 V	I_R	-	0.01	0.1	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	17	17.9	18.8	V
Reverse clamping voltage	at $I_{PP} = I_{PPM}$ = 3.6 A, t_p = 8/20 µs	V_C	-	25.3	28	V
Forward clamping voltage	at I_{PP} = 1 A, t_p = 300 µs	V_F	0.9	1.1	1.2	V
	at $I_{PP} = I_{PPM}$ = 3.6 A, t_p = 8/20 µs	V_F	-	1.5	1.72	V
Dynamic resistance	t_p = 100 ns (TLP); pin 2-1	r_{dyn}	-	0.53	-	Ω
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	21	27	33	pF

ELECTRICAL CHARACTERISTICS VESD26A5-06G
(T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand off voltage	Max. reverse working voltage	V_{RWM}	-	-	26	V
Reverse voltage	at I_R = 0.1 µA	V_R	26	-	-	V
Reverse current	at V_R = 26 V	I_R	-	< 0.01	0.1	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	27.6	29.1	30.6	V
Reverse clamping voltage	at $I_{PP} = I_{PPM}$ = 2.1 A, t_p = 8/20 µs	V_C	-	43	48	V
Forward clamping voltage	at I_{PP} = 1 A, t_p = 300 µs	V_F	0.9	1.1	1.2	V
	at $I_{PP} = I_{PPM}$ = 2.1 A, t_p = 8/20 µs	V_F	-	1.3	1.42	V
Dynamic resistance	t_p = 100 ns (TLP); pin 2-1	r_{dyn}	-	1.9	-	Ω
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	14	17.5	21	pF

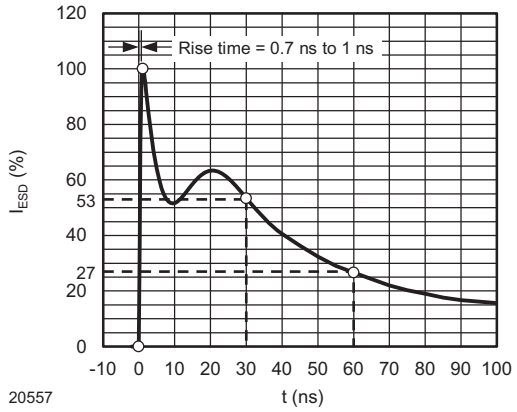


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω / 150 pF)

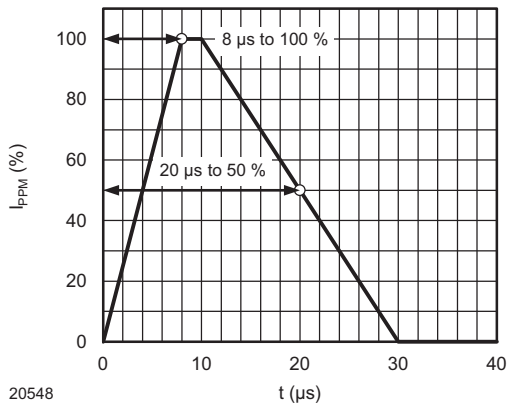


Fig. 2 - 8/20 µs Peak Pulse Current Wave Form acc. IEC 61000-4-5

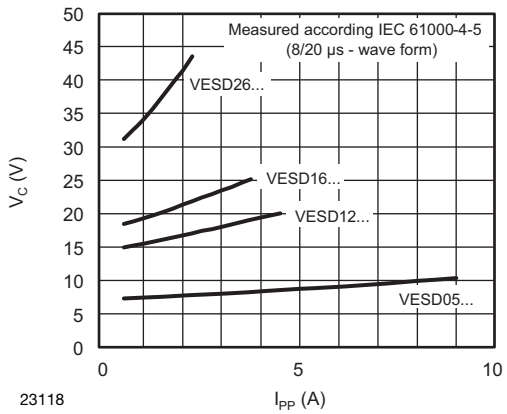


Fig. 3 - Typical Peak Clamping Voltage vs. Peak Pulse Current

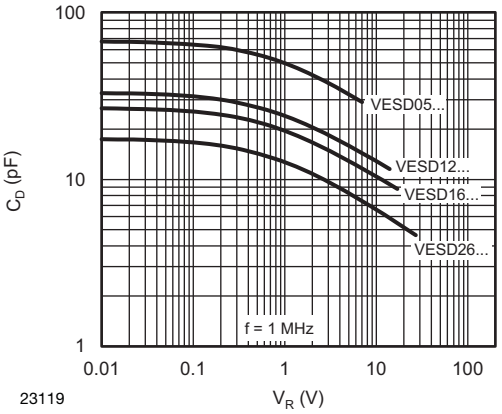


Fig. 4 - Typical Capacitance vs. Reverse Voltage

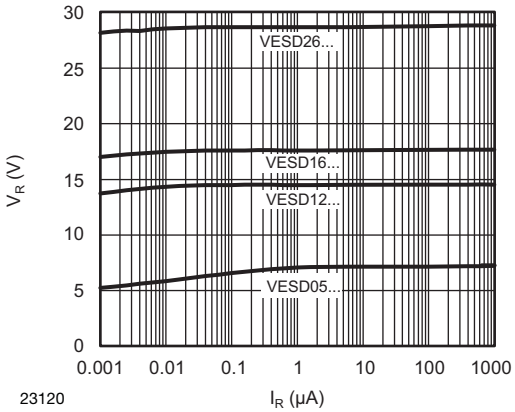


Fig. 5 - Typical Reverse Voltage vs. Reverse Current

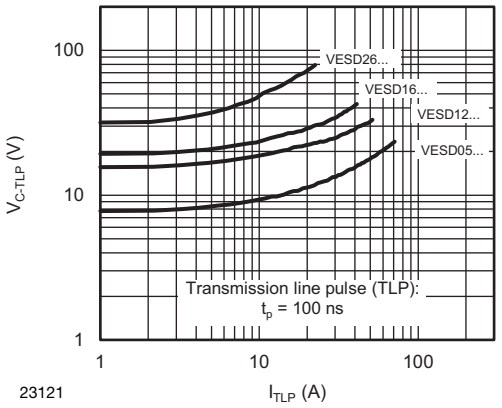
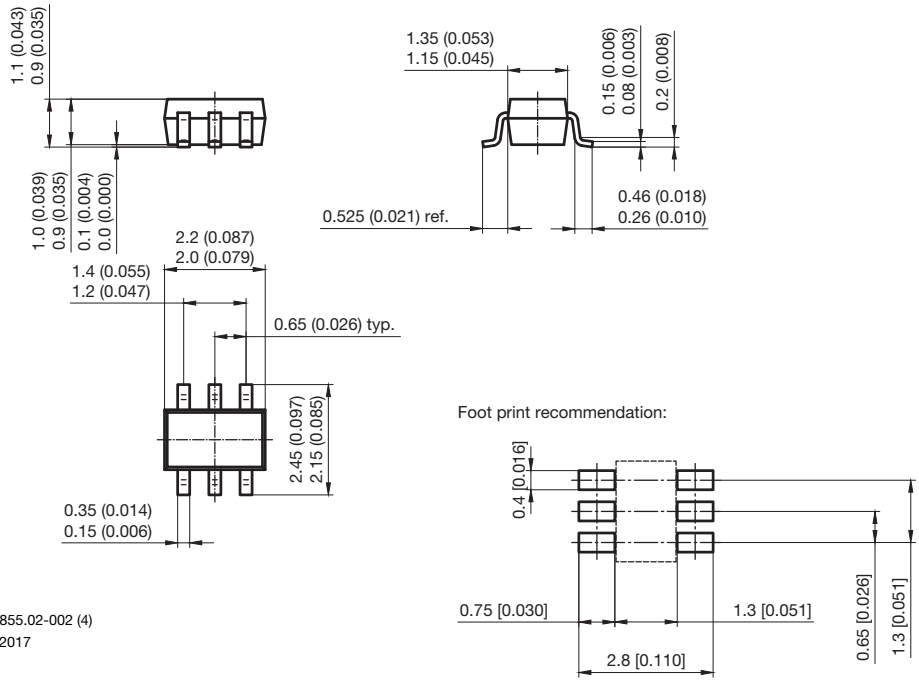


Fig. 6 - Typical Clamping Voltage vs. Peak Pulse Current

PACKAGE DIMENSIONS in millimeters (Inches): SOT-363



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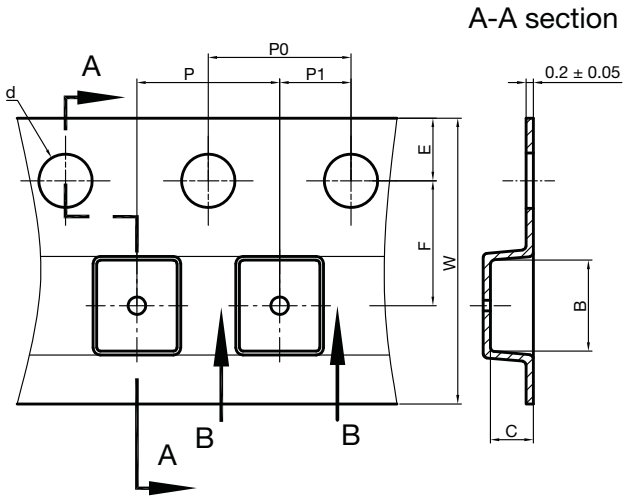
CARRIER TAPE SOT-363



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
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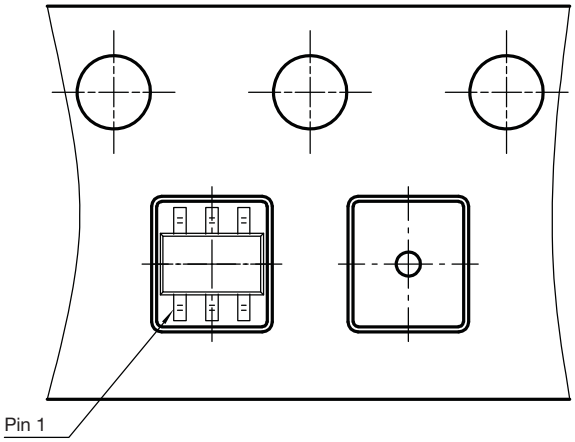
ORIENTATION IN CARRIER TAPE SOT-363



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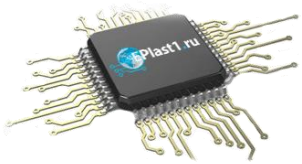
- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.