

PE4305ES ~ PE4336ES Series

ESD Protection

Voltage

5~36 V

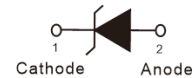
Features

- IEC61000-4-2 : $\pm 30\text{kV}$ Air, $\pm 30\text{kV}$ Contact
- IEC61000-4-5(Lightning) : 3.3~17.5A(8/20 μs)
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : SOD-523 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0014 grams

SOD-523



Maximum Ratings and Thermal Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNITS
ESD IEC61000-4-2(Air)	V_{ESD}	± 30	kV
ESD IEC61000-4-2(Contact)		± 30	
Typical Thermal Resistance ^(Note 1)	$R_{\theta\text{JA}}$	710	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55~150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55~150	$^\circ\text{C}$

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Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PE4305ES						
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Reverse Stand-Off Voltage ^(Note 2)	V_{RWM}	-	-	-	5	V
Reverse Breakdown Voltage	V_{BR}	$I_{BT} = 1\text{mA}$	6	-	8.5	V
Reverse Leakage Current	I_R	$V_R = 5\text{V}$	-	-	1	μA
Clamping Voltage	V_{CL}	$I_{PP} = 1\text{A}$, $t_P = 8/20\mu\text{s}$	-	-	8.5	V
		$I_{PP} = 17.5\text{A}$, $t_P = 8/20\mu\text{s}$	-	-	12.4	V
Off State Junction Capacitance	C_J	0Vdc Bias $f = 1\text{MHz}$	-	-	200	pF

PE4307ES						
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Reverse Stand-Off Voltage ^(Note 2)	V_{RWM}	-	-	-	7	V
Reverse Breakdown Voltage	V_{BR}	$I_{BT} = 1\text{mA}$	7.7	-	10	V
Reverse Leakage Current	I_R	$V_R = 7\text{V}$	-	-	1	μA
Clamping Voltage	V_{CL}	$I_{PP} = 1\text{A}$, $t_P = 8/20\mu\text{s}$	-	-	12	V
		$I_{PP} = 12.9\text{A}$, $t_P = 8/20\mu\text{s}$	-	-	16.8	V
Off State Junction Capacitance	C_J	0Vdc Bias $f = 1\text{MHz}$	-	-	160	pF

PE4309ES						
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Reverse Stand-Off Voltage ^(Note 2)	V_{RWM}	-	-	-	9	V
Reverse Breakdown Voltage	V_{BR}	$I_{BT} = 1\text{mA}$	9.9	-	12	V
Reverse Leakage Current	I_R	$V_R = 9\text{V}$	-	-	1	μA
Clamping Voltage	V_{CL}	$I_{PP} = 1\text{A}$, $t_P = 8/20\mu\text{s}$	-	-	13	V
		$I_{PP} = 9.5\text{A}$, $t_P = 8/20\mu\text{s}$	-	-	23	V
Off State Junction Capacitance	C_J	0Vdc Bias $f = 1\text{MHz}$	-	-	120	pF

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PE4312ES

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Reverse Stand-Off Voltage ^(Note 2)	V_{RWM}	-	-	-	12	V
Reverse Breakdown Voltage	V_{BR}	$I_{BT} = 1mA$	13.2	-	15.5	V
Reverse Leakage Current	I_R	$V_R = 12V$	-	-	1	μA
Clamping Voltage	V_{CL}	$I_{PP} = 1A, t_P = 8/20\mu s$	-	-	17	V
		$I_{PP} = 8.3A, t_P = 8/20\mu s$	-	-	26.5	V
Off State Junction Capacitance	C_J	0Vdc Bias $f = 1MHz$	-	-	90	pF

PE4315ES

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Reverse Stand-Off Voltage ^(Note 2)	V_{RWM}	-	-	-	15	V
Reverse Breakdown Voltage	V_{BR}	$I_{BT} = 1mA$	16.5	-	20	V
Reverse Leakage Current	I_R	$V_R = 15V$	-	-	1	μA
Clamping Voltage	V_{CL}	$I_{PP} = 1A, t_P = 8/20\mu s$	-	-	22	V
		$I_{PP} = 7.8A, t_P = 8/20\mu s$	-	-	28	V
Off State Junction Capacitance	C_J	0Vdc Bias $f = 1MHz$	-	-	65	pF

PE4320ES

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Reverse Stand-Off Voltage ^(Note 2)	V_{RWM}	-	-	-	20	V
Reverse Breakdown Voltage	V_{BR}	$I_{BT} = 1mA$	22	-	26	V
Reverse Leakage Current	I_R	$V_R = 20V$	-	-	1	μA
Clamping Voltage	V_{CL}	$I_{PP} = 1A, t_P = 8/20\mu s$	-	-	29	V
		$I_{PP} = 5.8A, t_P = 8/20\mu s$	-	-	38	V
Off State Junction Capacitance	C_J	0Vdc Bias $f = 1MHz$	-	-	55	pF

PE4305ES ~ PE4336ES Series

PE4324ES

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Reverse Stand-Off Voltage ^(Note 2)	V_{RWM}	-	-	-	24	V
Reverse Breakdown Voltage	V_{BR}	$I_{BT} = 1mA$	26.4	-	31	V
Reverse Leakage Current	I_R	$V_R = 12V$	-	-	0.05	μA
Clamping Voltage	V_{CL}	$I_{PP} = 1A, t_P = 8/20\mu s$	-	-	35	V
		$I_{PP} = 4.8A, t_P = 8/20\mu s$	-	-	45	V
Off State Junction Capacitance	C_J	0Vdc Bias $f = 1MHz$	-	-	42	pF

PE4336ES

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Reverse Stand-Off Voltage ^(Note 2)	V_{RWM}	-	-	-	36	V
Reverse Breakdown Voltage	V_{BR}	$I_{BT} = 1mA$	39.6	-	47	V
Reverse Leakage Current	I_R	$V_R = 15V$	-	-	0.05	μA
Clamping Voltage	V_{CL}	$I_{PP} = 1A, t_P = 8/20\mu s$	-	-	51	V
		$I_{PP} = 3.3A, t_P = 8/20\mu s$	-	-	65	V
Off State Junction Capacitance	C_J	0Vdc Bias $f = 1MHz$	-	-	20	pF

NOTES :

1. Mounted on a FR4 PCB, single-sided copper, standard footprint.
2. A transient suppressor is selected according to the working peak reverse voltage(V_{RWM}), which should be equal to or greater than the DC or continuous peak operation voltage level.

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TYPICAL CHARACTERISTIC CURVES

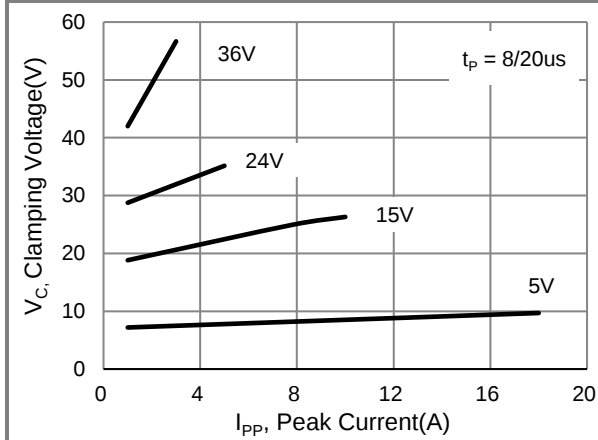


Fig.1 Typical Peak Clamping Voltage

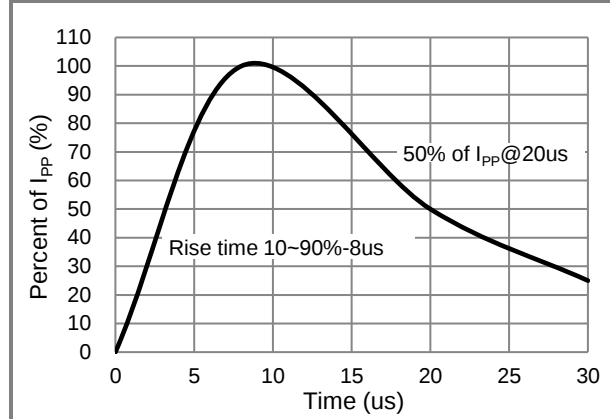


Fig.2 Pulse Waveform

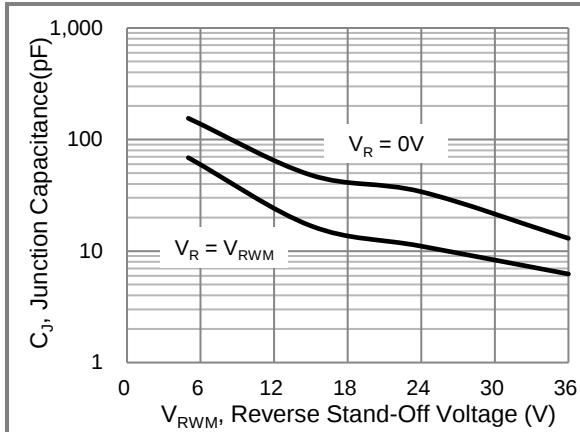


Fig.3 Typical Junction Capacitance

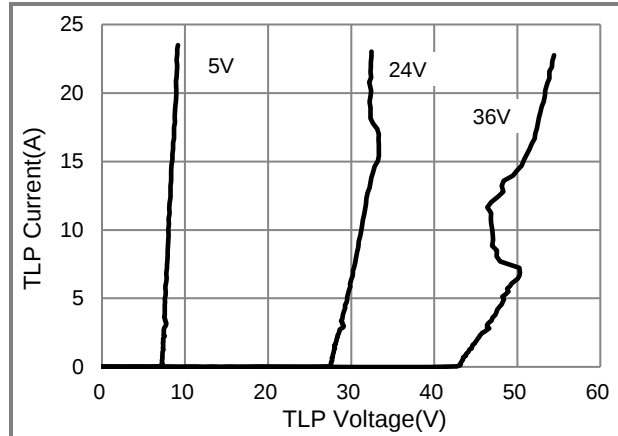


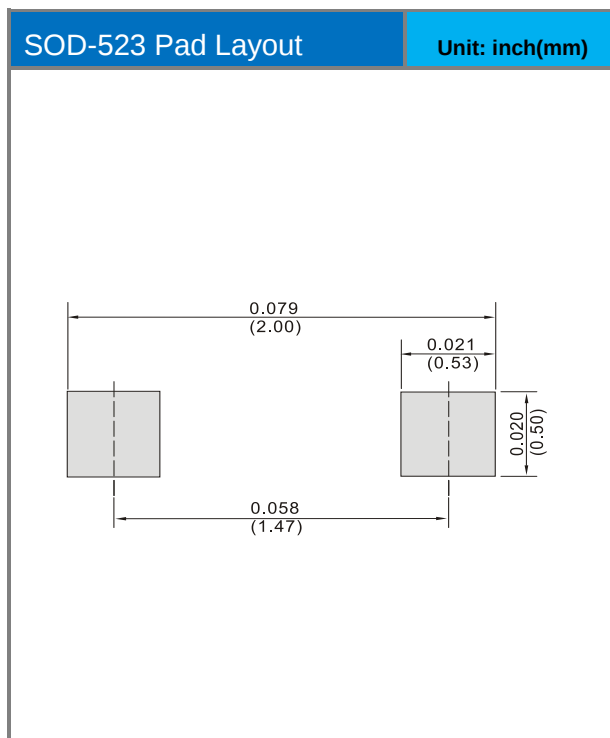
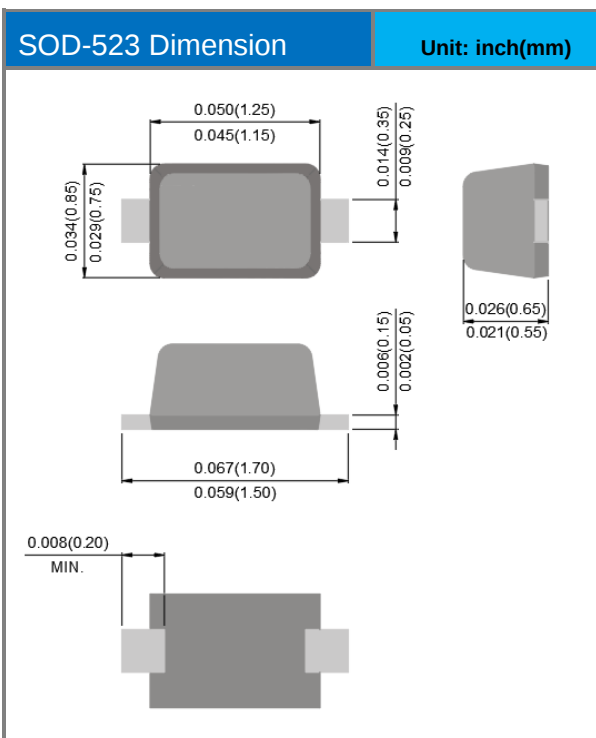
Fig.4 TLP Measurement

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Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PE4305ES	SOD-523	5K pcs / 7" reel	ACG
PE4307ES	SOD-523	5K pcs / 7" reel	ACJ
PE4309ES	SOD-523	5K pcs / 7" reel	ACK
PE4312ES	SOD-523	5K pcs / 7" reel	ACL
PE4315ES	SOD-523	5K pcs / 7" reel	ACM
PE4320ES	SOD-523	5K pcs / 7" reel	ACN
PE4324ES	SOD-523	5K pcs / 7" reel	ACP
PE4336ES	SOD-523	5K pcs / 7" reel	ACR

Packaging Information & Mounting Pad Layout



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