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Low Capacitance ESD Protection Array



CSRS045V0P RoHS Device



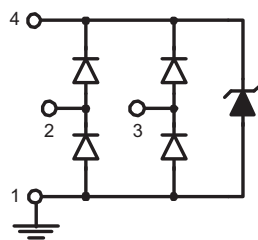
Features

- ESD Protected for 2 high speed I/O ports
- IEC61000-4-2 (ESD) ±8kV (Contact) ,±15kV(Air).
- IEC61000-4-4 (FET)(5/50ns) Level-3, 20A for I/O 40A for Power.
- IEC61000-4-5 (Lightning) 6A(8/20uS)
- Working voltage: 5V
- Low capacitance:1.2pF(Typ.).
- Fast turn-on and Low clamping voltage.

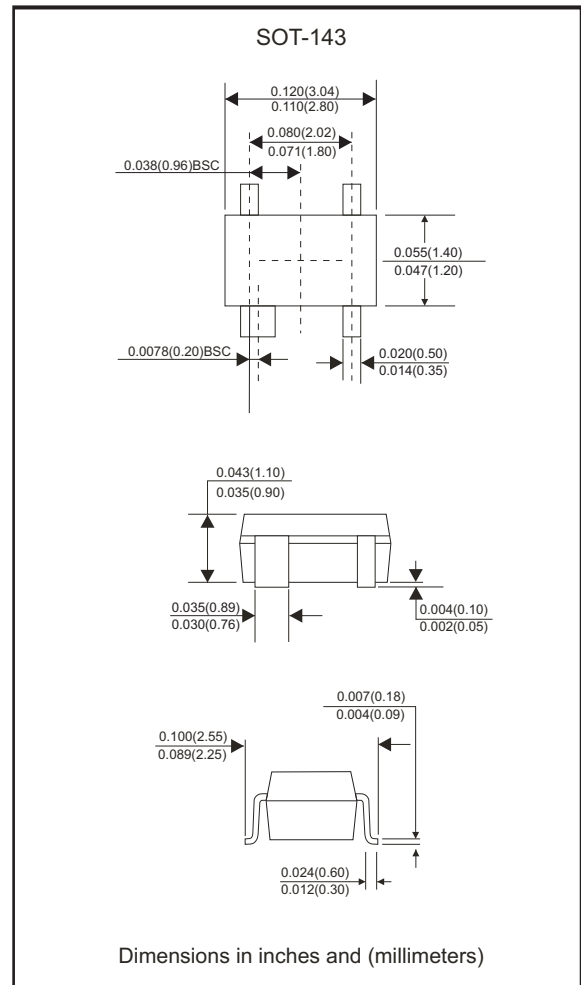
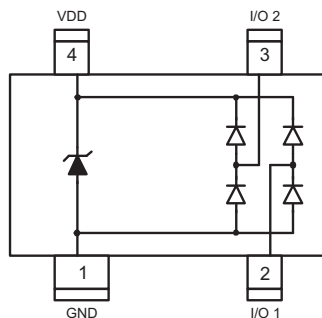
Mechanical data

- Case: SOT-143 standard package, molded plastic.
- Terminals: Solder plated, solderable per MIL-STD-750,method 2026.
- Weight: 0.0108 gram(approx.).

Circuit Diagram



Pin Configuration



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Maximum Rating (at TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse current (tp = 8/20 us)	I _{PP}	6	A
Operating supply voltage	V _{DC}	6	V
ESD per IEC 61000-4-2(Air) ESD per IEC 61000-4-2(Contact)	V _{ESD}	17 12	kV
Lead soldering temperature	T _{SOL}	260 (10 sec)	°C
Operating temperature	T _J	-55 to +85	°C
Storage temperature	T _{STG}	-55 to +150	°C
DC voltage at any I/O pin	V _{IO}	(GND -0.5) to (VDD +0.5)	V

Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Reverse stand-Off voltage	Pin 4 to Pin 1	V _{RWM}			5	V
Reverse leakage current	V _{RWM} = 5 V, T=25°C, Pin 4 to Pin 1	I _{Leak}			2	uA
Channel leakage current	V _{PIN 4} = 5 V, V _{PIN 1} = 0V, T=25°C	I _{CH-Leak}			1	uA
Diode breakdown voltage	I _R = 1 mA,, T=25°C, Pin 4 to Pin 1	V _{BV}	6.2			V
Forward voltage	I _F = 15 mA,, T=25°C, Pin 1 to Pin 4	V _F		0.8	1	V
Clamping voltage	I _{PP} = 5 A, tp=8/20us, T=25°C, Any Channel Pin to Ground	V _{CL}		8.1	9	V
ESD Holding Voltage	IEC 61000-4-2 +6kV, T=25°C, Contact mode Any channel pin to ground	V _{hold}		13		V
Channel Input Capacitance	V _{pin4} = 5V,V _{pin1} = 0V, V _{IN} =2.5V, f = 1MHz,Any channel pin to ground	C _{IN}		1.2	1.4	pF
Channel to Channel Input Capacitance	V _{pin4} = 5V,V _{pin1} = 0V, V _{IN} =2.5V f = 1MHz,Between channel pin	C _{CROSS}		0.1	0.12	pF
Voltage of Channel Input Capacitance	V _{pin4} = 5V,V _{pin1} = 0V, V _{IN} =2.5V f = 1MHz,Channel_x pin to ground - channel_y pin to ground	ΔC _{IN}		0.04	0.06	pF

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RATING AND CHARACTERISTIC CURVES (CSRS045V0P)

Fig. 1 - Power derating curve

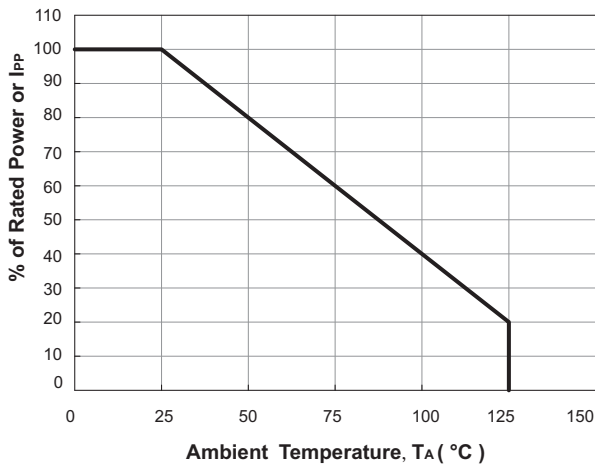


Fig. 2 - Clamping voltage vs. Peak pulse current

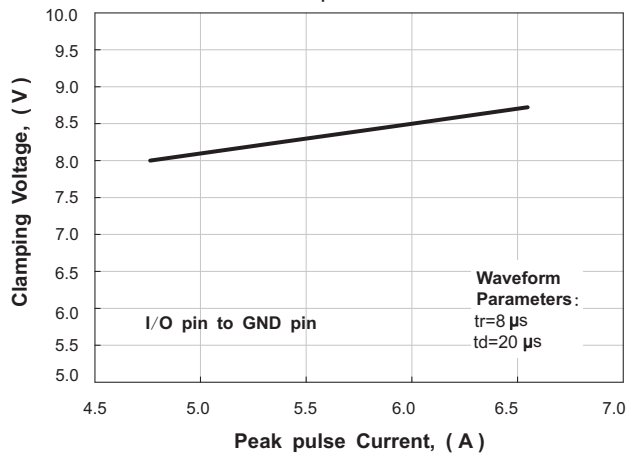


Fig.3 - Forward voltage v.s. forward current

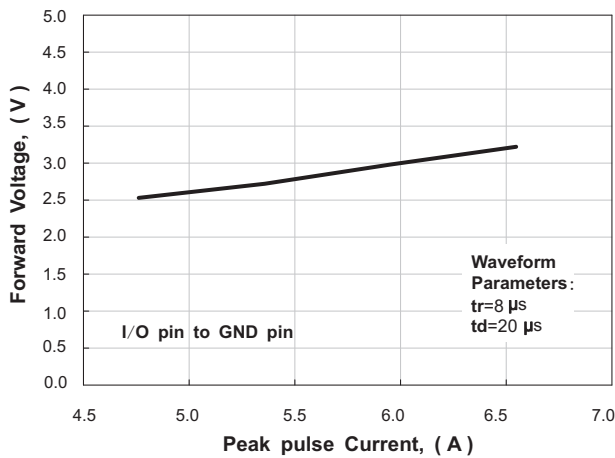


Fig.4 - Typical variation of C_{IN} v.s. V_{IN}

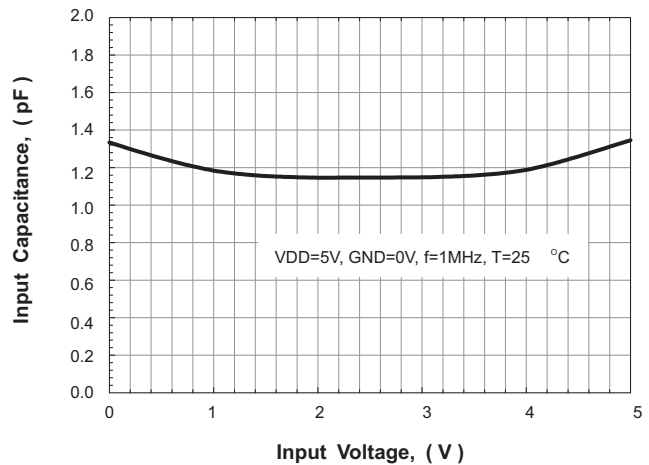


Fig. 5 - Typical variation of C_{IN} v.s. temperature

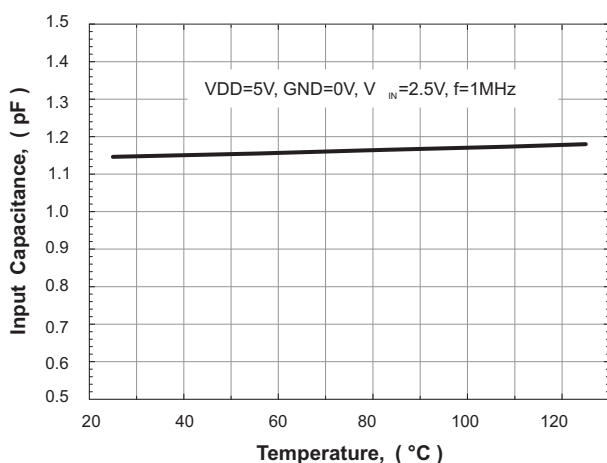
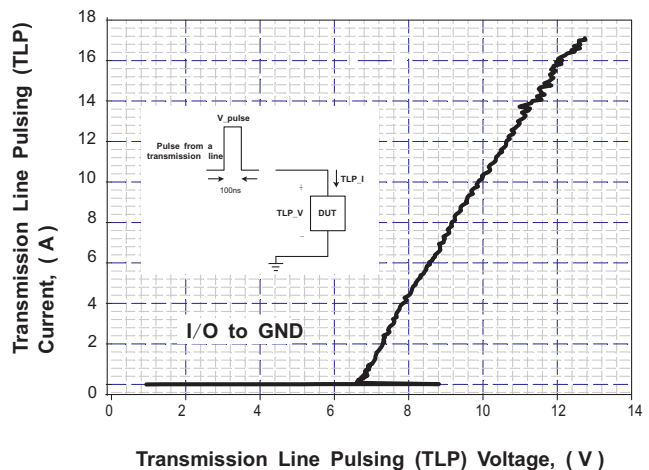


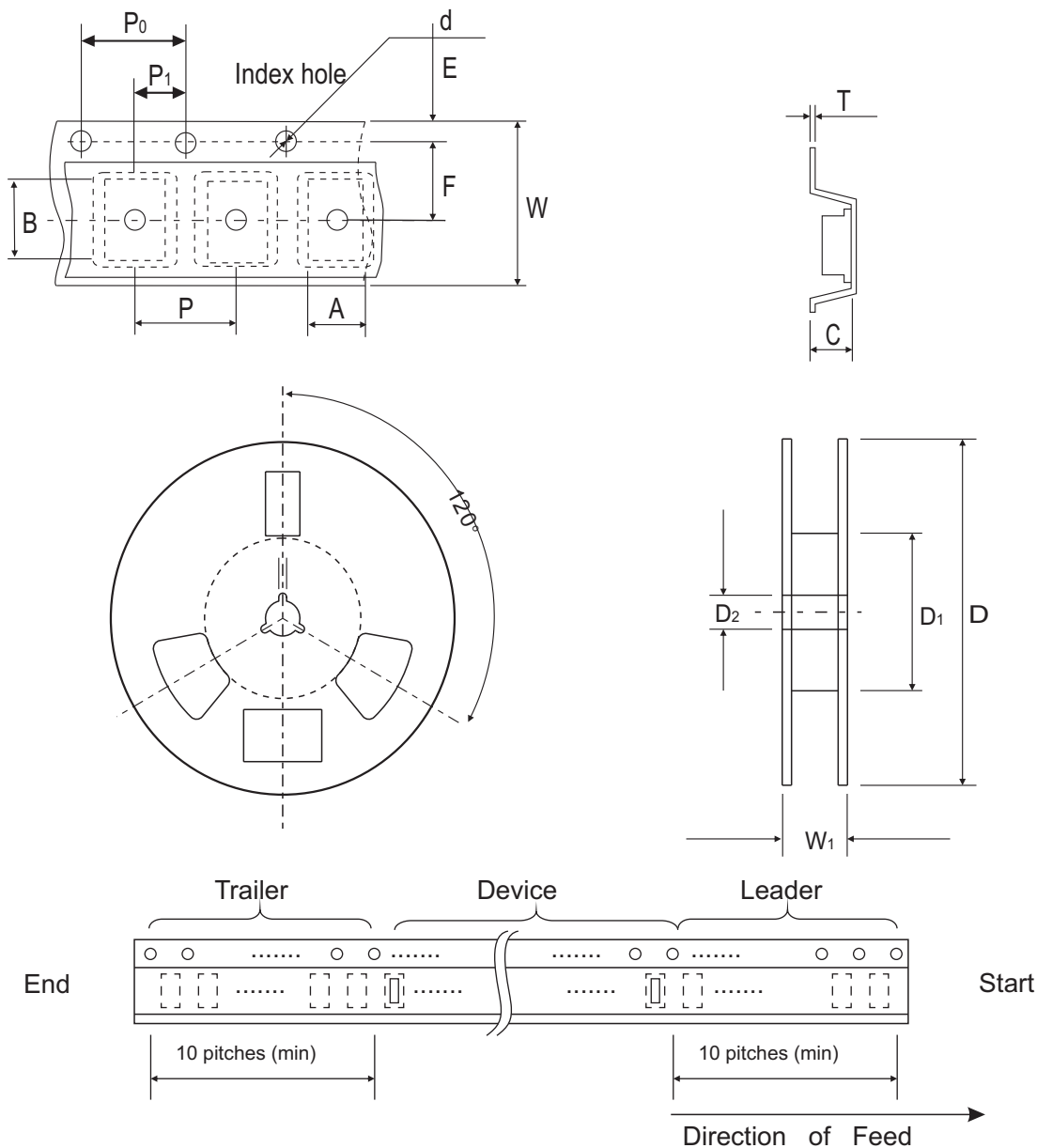
Fig. 6 - Transmission line pulsing (TLP) measurement



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Reel Taping Specification



SOT-143	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.19 ± 0.10	2.80 ± 0.10	1.31 ± 0.10	1.55 ± 0.10	178 ± 1	50.0 MIN.	13.0 ± 0.20
	(inch)	0.126 ± 0.004	0.110 ± 0.004	0.052 ± 0.004	0.061 ± 0.004	7.008 ± 0.040	1.969 MIN.	0.512 ± 0.008

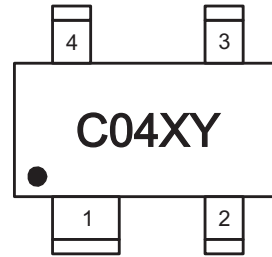
SOT-143	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 ± 0.30	14.4 MAX.
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 ± 0.012	0.567 MAX

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Marking Code

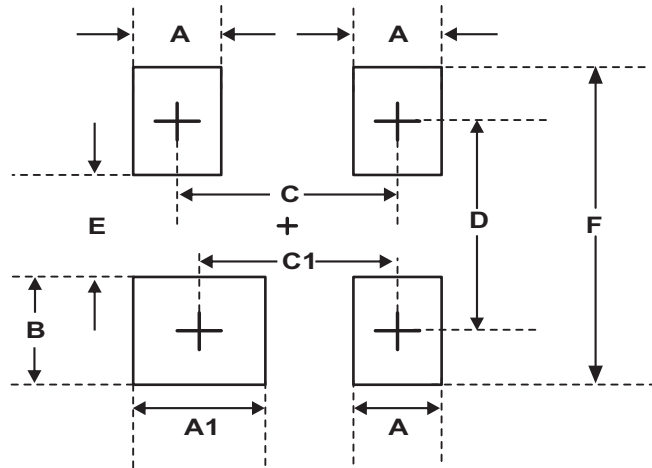
Part Number	Marking Code
CSRS045V0P	C04XY
CSRS045V0P (Green Part)	C06XY



C04 = Device code
 X = Date Code
 Y = Control Code

Suggested PAD Layout

SIZE	SOT-143	
	(mm)	(inch)
A	1.00	0.039
A1	1.40	0.055
B	1.40	0.055
C	1.92	0.076
C1	1.72	0.068
D	2.20	0.087
E	0.80	0.031
F	3.60	0.142



Standard Packaging

Case Type	Qty Per Reel	Reel Size
	(Pcs)	(inch)
SOT-143	3,000	7