



THE DATASHEET OF CSRS045V0P



CSRS045V0P-HF

RoHS Device
Halogen Free



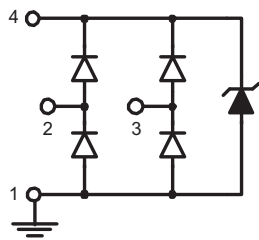
Features

- ESD Protected for 2 high speed I/O ports
- IEC61000-4-2 (ESD) $\pm 8\text{kV}$ (Contact), $\pm 15\text{kV}$ (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.

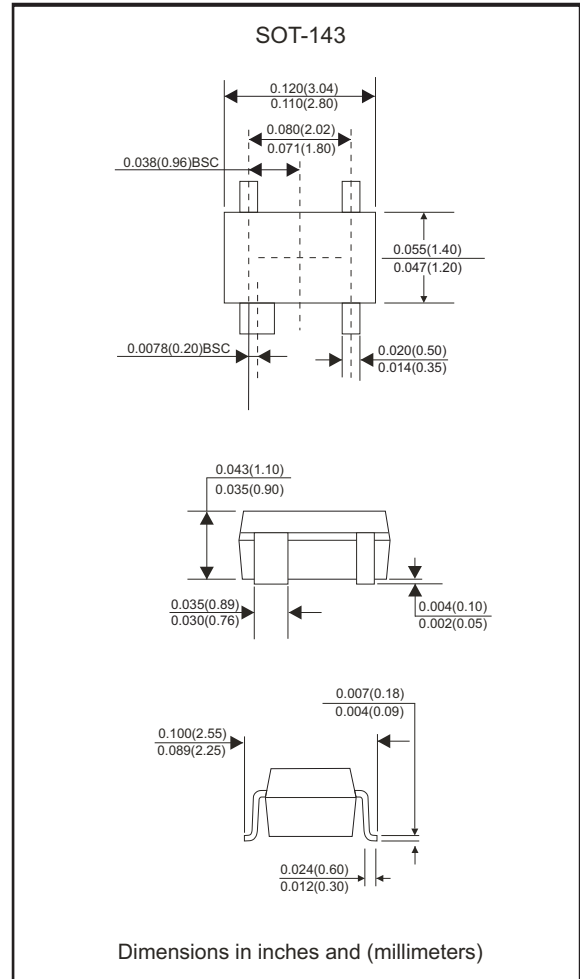
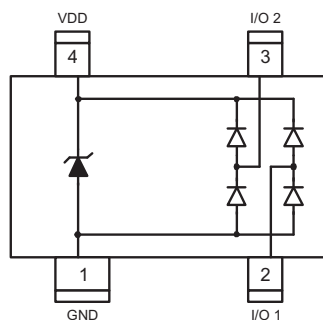
Mechanical data

- 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



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 |

RATING AND CHARACTERISTIC CURVES (CSRS045V0P-HF)

Fig. 1 - Power derating curve

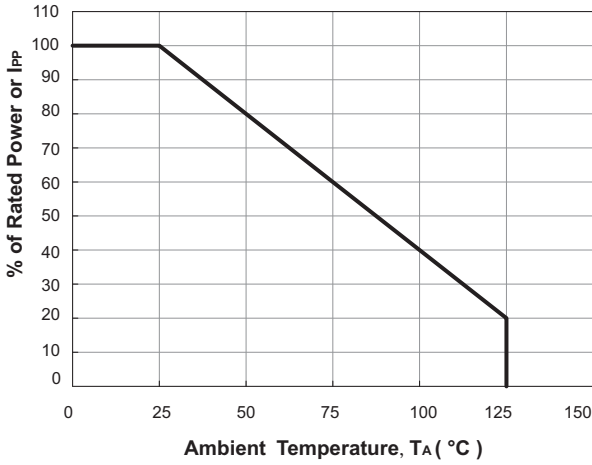


Fig. 2 - Clamping voltage vs. Peak pulse current

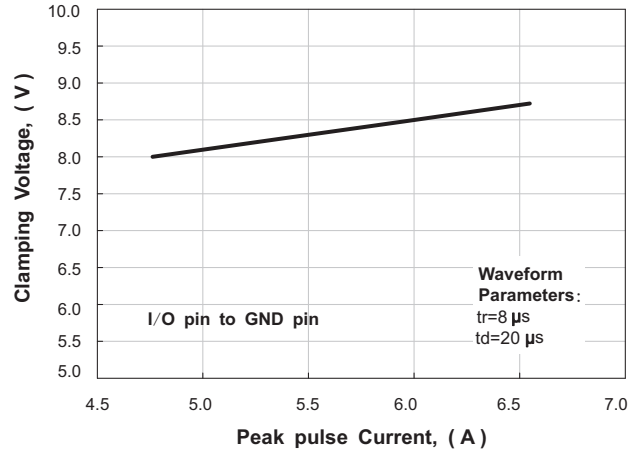


Fig.3 - Forward voltage v.s. forward current

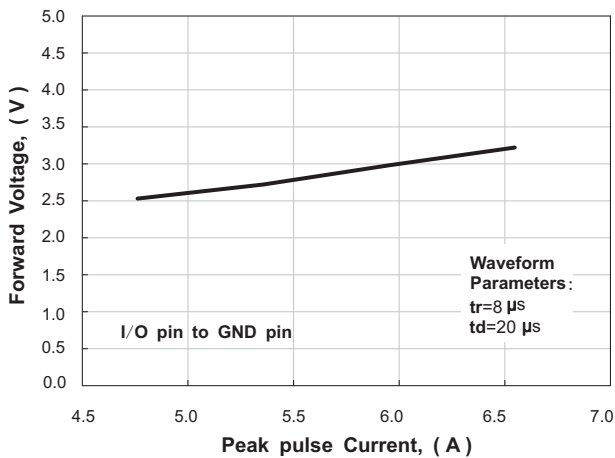


Fig.4 - Typical variation of C_{IN} v.s. V_{IN}

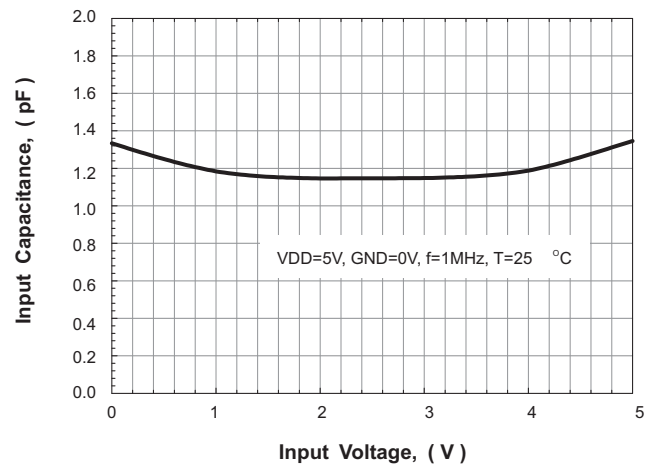


Fig. 5 - Typical variation of C_{IN} v.s. temperature

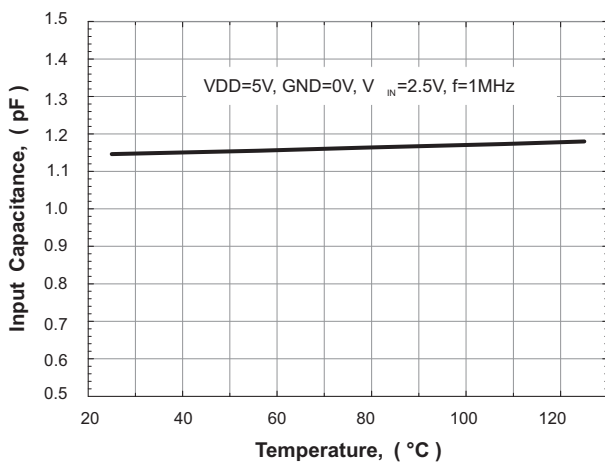
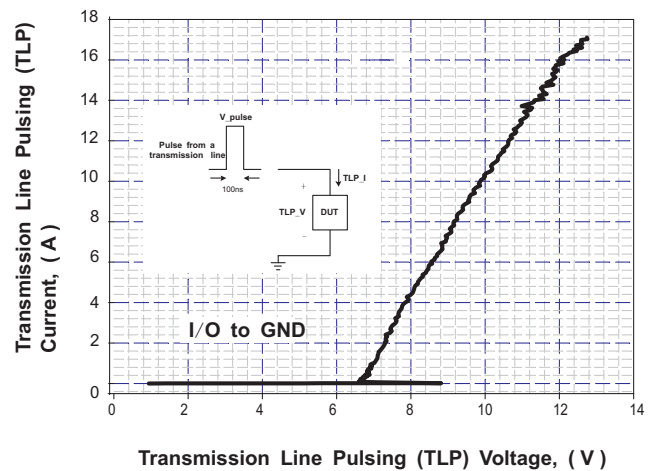
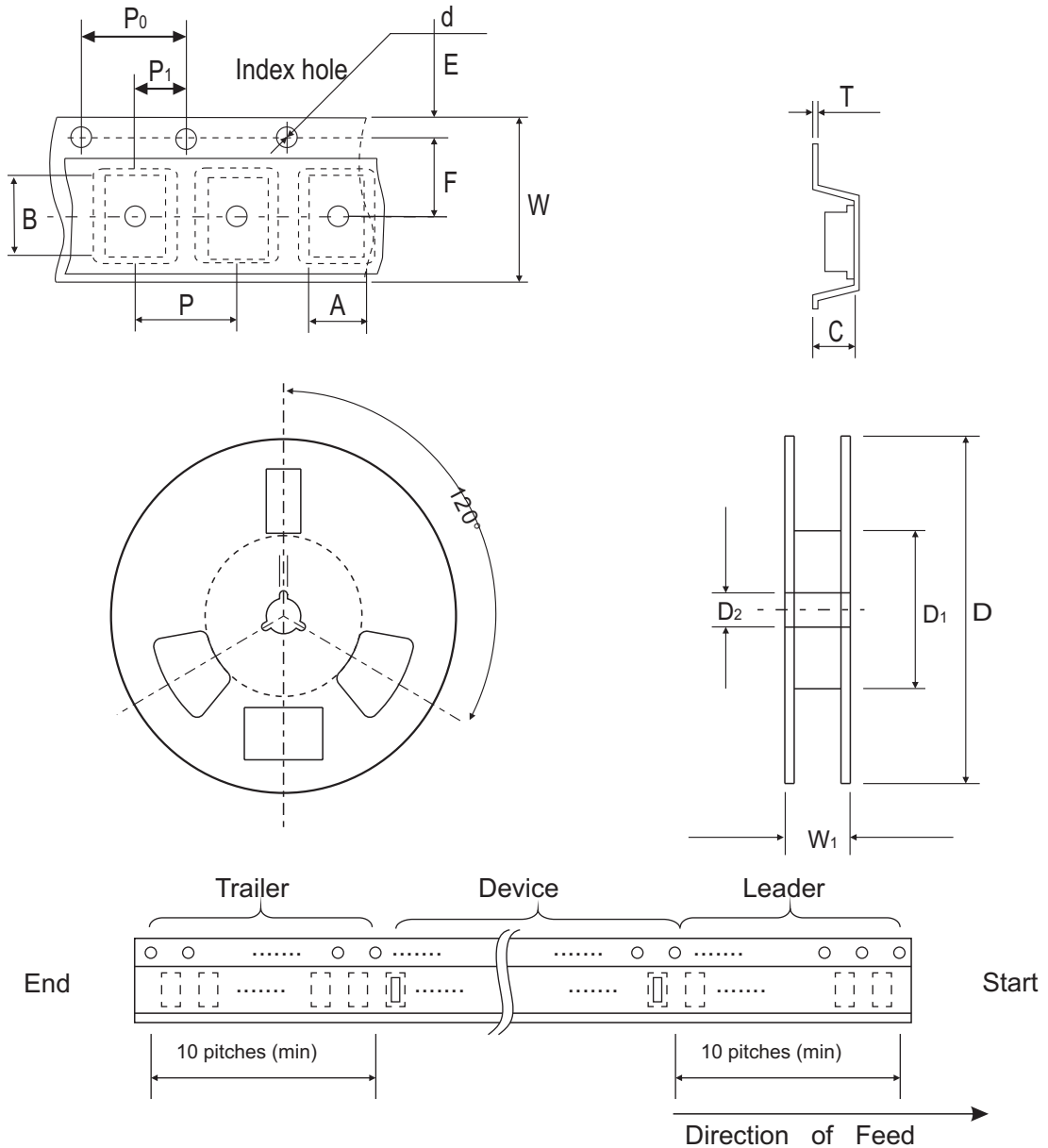


Fig. 6 - Transmission line pulsing (TLP) measurement



Reel Taping Specification

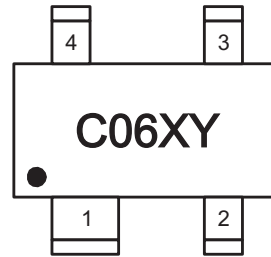


| SOT-143 | SYMBOL | A | B | C | d | D | D1 | D2 |
|---------|--------|---------------|---------------|---------------|---------------|---------------|------------|---------------|
| | (mm) | 3.19 ± 0.10 | 2.80 ± 0.10 | 1.31 ± 0.10 | 1.55 ± 0.10 | 178 ± 1 | 50.0 MIN. | 13.0 ± 0.20 |
| | (inch) | 0.126 ± 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 |

Marking Code

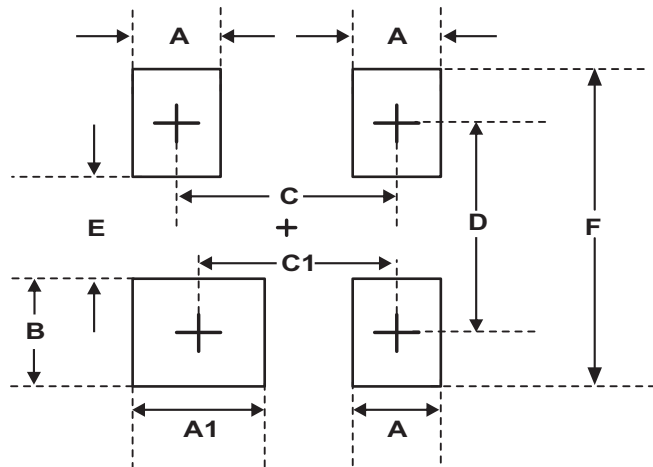
| Part Number | Marking Code |
|---------------|--------------|
| CSRS045V0P-HF | C06XY |



C06 = 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 |

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