

# NEC

## HIGH ISOLATION VOLTAGE HIGH COLLECTOR TO EMITTER VOLTAGE SOP MULTI PHOTOCOUPLER

PS2832-1,-4  
PS2833-1,-4

### FEATURES

- **HIGH ISOLATION VOLTAGE**
- **SOP (SMALL OUT-LINE PACKAGE)**  
4, 16-pin SOP, Lead pin pitch is 1.27 mm
- **HIGH CURRENT TRANSFER RATIO**  
CTR = 2000 % TYP
- **HIGH COLLECTOR TO EMITTER VOLTAGE**  
V<sub>CEO</sub> = 300 V : PS2832-1,-4  
V<sub>CEO</sub> = 350 V : PS2833-1,-4
- **TAPING PRODUCT NUMBER**  
PS2832-1-F3, F4, PS2833-1-F3, F4  
PS2832-4-F3, F4, PS2833-4-F3, F4

### DESCRIPTION

PS2832-1,-4 and PS2833-1,-4 are optically coupled isolators containing a GaAs light emitting diode and an NPN silicon darlington-connected phototransistor in a plastic SOP (Small Out-Line Package) for high density mounting applications.

### APPLICATIONS

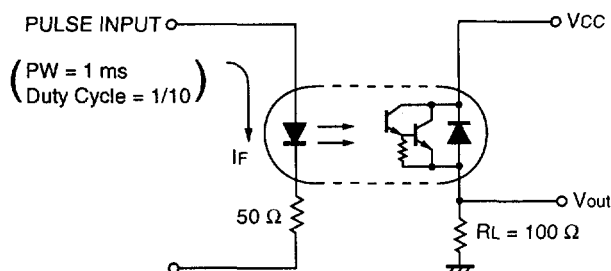
- HYBRID IC
- TELEPHONE / TELEGRAPH RECEIVER
- FAX

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### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

| PART NUMBER |                      |                                                                                                |       | PS2832-1, -4, PS2833-1, -4 |      |     |
|-------------|----------------------|------------------------------------------------------------------------------------------------|-------|----------------------------|------|-----|
|             | SYMBOLS              | PARAMETERS                                                                                     | UNITS | MIN                        | TYP  | MAX |
| Diode       | V <sub>F</sub>       | Forward Voltage, I <sub>F</sub> = 10 mA                                                        | V     |                            | 1.2  | 1.4 |
|             | I <sub>R</sub>       | Reverse Current, V <sub>R</sub> = 5 V                                                          | μA    |                            |      | 5   |
|             | C                    | Terminal Capacitance, V = 0, f = 1.0 MHz                                                       | pF    |                            | 30   |     |
| Transistor  | I <sub>CEO</sub>     | Collector to Emitter Current<br>I <sub>F</sub> = 0 mA, V <sub>CE</sub> = 300 V                 | nA    |                            |      | 400 |
| Coupled     | CTR                  | Current Transfer Ratio, I <sub>F</sub> = 1 mA, V <sub>CE</sub> = 2 V                           | %     | 400                        | 2000 |     |
|             | V <sub>CE(sat)</sub> | Collector Saturation Voltage, I <sub>F</sub> = 1 mA, I <sub>C</sub> = 2 mA                     | V     |                            |      | 1.0 |
|             | R <sub>I-O</sub>     | Isolation Resistance, V <sub>in-out</sub> = 1.0 k V <sub>CC</sub>                              | Ω     | 10 <sup>11</sup>           |      |     |
|             | C <sub>I-O</sub>     | Isolation Capacitance, V = 0, f = 1.0 MHz                                                      | pF    |                            | 0.4  |     |
|             | t <sub>r</sub>       | Rise Time <sup>1</sup> , V <sub>CC</sub> = 5 V, I <sub>C</sub> = 10 mA, R <sub>L</sub> = 100 Ω | μs    |                            | 100  |     |
|             | t <sub>f</sub>       | Fall Time <sup>1</sup> , V <sub>CC</sub> = 5 V, I <sub>C</sub> = 10 mA, R <sub>L</sub> = 100 Ω | μs    |                            | 100  |     |

#### 1. Test Circuit for Switching Time



# PS2832-1, -4, PS2833-1, -4

## ABSOLUTE MAXIMUM RATINGS<sup>1</sup> (T<sub>A</sub> = 25°C)

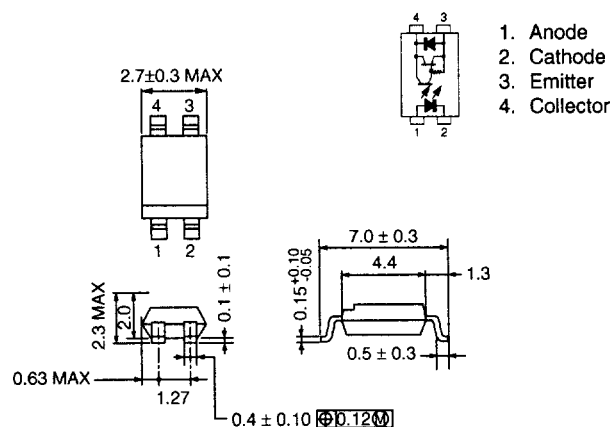
| SYMBOLS              | PARAMETERS                                         | UNITS               | RATINGS              |                      |
|----------------------|----------------------------------------------------|---------------------|----------------------|----------------------|
| Diode                |                                                    |                     | PS2832-1<br>PS2833-1 | PS2832-4<br>PS2833-4 |
| I <sub>F</sub>       | Forward Current (DC)                               | mA                  | 50                   | 50                   |
| V <sub>R</sub>       | Reverse Voltage                                    | V                   | 6                    | 6                    |
| ΔP <sub>D</sub> /°C  | Power Dissipation Derating                         | mW/°C               | 0.6                  | 0.8                  |
| P <sub>D</sub>       | Power Dissipation                                  | mW/Ch               | 60                   | 80                   |
| I <sub>F(Peak)</sub> | Peak Forward Current<br>PW = 100 μs, Duty Cycle 1% | A                   | 1                    | 1                    |
| Transistor           |                                                    |                     |                      |                      |
| V <sub>CEO</sub>     | Collector to Emitter Voltage                       | V                   | 300 / 350            | 300 / 350            |
| V <sub>ECO</sub>     | Emitter to Collector Voltage                       | V                   | 0.3                  | 0.3                  |
| I <sub>C</sub>       | Collector Current                                  | mA/Ch               | 40                   | 40                   |
| ΔP <sub>C</sub> /°C  | Power Dissipation Derating                         | mW/°C               | 1.2                  | 1.2                  |
| P <sub>C</sub>       | Power Dissipation                                  | mW/Ch               | 120                  | 120                  |
| Coupled              |                                                    |                     |                      |                      |
| BV                   | Isolation Voltage <sup>2</sup>                     | V <sub>r.m.s.</sub> | 2500                 | 3750                 |
| T <sub>A</sub>       | Operating Ambient Temp.                            | °C                  | -55 to +100          |                      |
| T <sub>STG</sub>     | Storage Temperature                                | °C                  | -55 to +150          |                      |

### Notes:

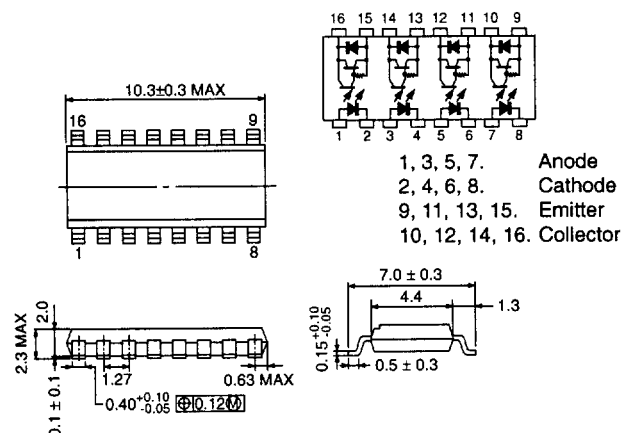
- Operation in excess of any one of these parameters may result in permanent damage.
- AC voltage for 1 minute at T<sub>A</sub> = 25 °C, RH = 60 % between input and output.

## OUTLINE DIMENSIONS (Units in mm)

PS2832-1  
PS2833-1

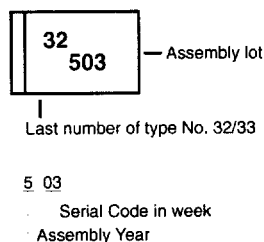


PS2832-4  
PS2833-4



## MARKING

PS2832-1  
PS2833-1



PS2832-4  
PS2833-4

