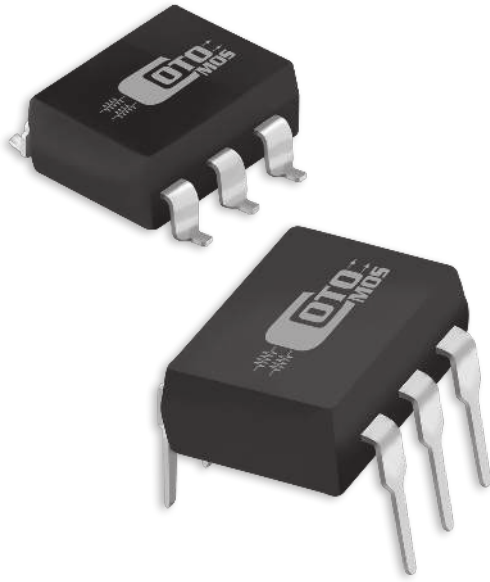


**CotoMOS® CT139/CS139**

The CT139 and CS139 combine Coto quality and economy in an industry standard 6-pin DIP package. The CT 139 and CS139 offer industry-leading switching capability in through-hole and surface-mount packages. Both relays can be configured to switch 50mA AC/DC in A-Configuration, 70mA DC in B-Configuration and 90mA in C-Configuration. See our Application Note entitled “How to Increase Your Current Capacity of 6-pin CotoMOS® Solid State MOSFET Relays by up to 100%” for additional details. Relays are ideally suited for Industrial, Battery Management and Test & Measurement Applications where high voltage switching is required.

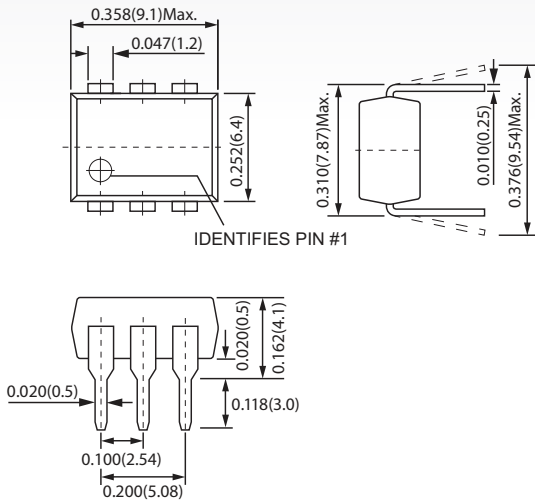
**CT139/CS139 Features**

- ▶ Contact Form: 1A
- ▶ Load Voltage: 1000V Maximum
- ▶ Operation LED Current: 5.0mA Maximum
- ▶ Load Current: 50mA Maximum
- ▶ On-Resistance: 75Ω Typical
- ▶ Low Off-State Leakage Current: 10µA Maximum
- ▶ I/O Breakdown Voltage: 3750Vrms Minimum
- ▶ Suffix - H for I/O Breakdown Voltage: 5000Vrms Minimum

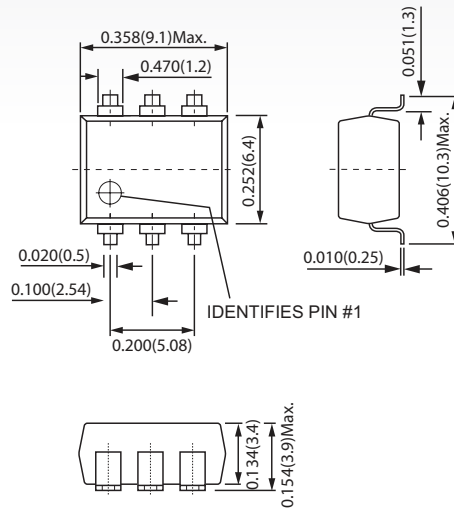


**DIMENSIONS**  
*in Inches (Millimeters)*

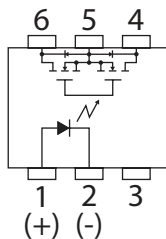
CT139



CS139



**TERMINAL IDENTIFICATION**



|                  |                      |
|------------------|----------------------|
| 1: Anode (LED)   | 4,6: Drain (MOS FET) |
| 2: Cathode (LED) | 5: Source (MOS FET)  |
| 3: NC            |                      |

## CT139/CS139 MAXIMUM RATINGS (Ambient Temperature: 25°C)

| Parameters                   | Symbol            | Units             | Value        |
|------------------------------|-------------------|-------------------|--------------|
| <b>INPUT SPECIFICATIONS</b>  |                   |                   |              |
| Continuous LED Current       | I <sub>F</sub>    | mA                | 50           |
| Peak LED Current             | I <sub>FP</sub>   | mA                | 500          |
| LED Reverse Voltage          | V <sub>R</sub>    | V                 | 5            |
| Input Power Dissipation      | P <sub>in</sub>   | mW                | 75           |
| <b>OUTPUT SPECIFICATIONS</b> |                   |                   |              |
| Load Voltage                 | V <sub>L</sub>    | V (AC peak or DC) | 1000         |
| Load Current                 | I <sub>L</sub>    | mA                | 50 / 70 / 90 |
| Peak Load Current            | I <sub>Peak</sub> | A                 | 0.15         |
| Output Power Dissipation     | P <sub>Out</sub>  | mW                | 360          |
| <b>RELAY SPECIFICATIONS</b>  |                   |                   |              |
| Total Power Dissipation      | P <sub>T</sub>    | mW                | 410          |
| I/O Breakdown Voltage        | V <sub>I/O</sub>  | V <sub>rms</sub>  | 3750         |
| Operating Temperature        | T <sub>Opr</sub>  | °C                | -40 ~ +85    |
| Storage Temperature          | T <sub>Stg</sub>  | °C                | -40 ~ +100   |

## CT139/CS139 ELECTRICAL SPECIFICATIONS (Ambient Temperature: 25°C)

| Parameters                   | Symbol             | Test Conditions   | Units | Min              | Typ  | Max |
|------------------------------|--------------------|---|-------|------------------|------|-----|
| <b>INPUT</b>                 |                    |   |       |                  |      |     |
| LED Forward Voltage          | V <sub>F</sub>     | I <sub>F</sub> =10mA  | V     | 1.0              | 1.17 | 1.5 |
| Operation LED Current        | I <sub>F On</sub>  |   | mA    |                  | 0.9  | 5.0 |
| Recovery LED Voltage         | V <sub>F Off</sub> |   | V     | 0.5              | 1.0  |     |
| <b>OUTPUT</b>                |                    |   |       |                  |      |     |
| On-Resistance Drain to Drain | R <sub>On</sub>    | I <sub>F</sub> =10mA, I <sub>L</sub> =Rating<br>Time to flow is within 1 sec. | Ω     |                  | 75   | 150 |
| Off-State Leakage Current    | I <sub>Leak</sub>  | I <sub>F</sub> =0mA, V <sub>L</sub> =1000V                                    | μA    |                  |      | 10  |
| Output Capacitance           | C <sub>Out</sub>   | V <sub>L</sub> =0V, f=1MHz  | pF    |                  | 100  |     |
| <b>TRANSMISSION</b>          |                    |   |       |                  |      |     |
| Turn-On Time                 | T <sub>On</sub>    | I <sub>F</sub> =10mA, I <sub>L</sub> =Rating                                  | ms    |                  | 0.3  | 1.0 |
| Turn-Off Time                | T <sub>Off</sub>   |   | ms    |                  | 0.04 | 0.5 |
| <b>COUPLED</b>               |                    |   |       |                  |      |     |
| I/O Insulation Resistance    | R <sub>I/O</sub>   |   | Ω     | 10 <sup>10</sup> |      |     |
| I/O Capacitance              | C <sub>I/O</sub>   | f=1MHz  | pF    |                  | 1.3  |     |

### Environmental Ratings:

Operating Temp: -40°C to +85°C; Storage Temp: -40 to +100°C.

# CT139/CS139 GRAPHS

