



Micro Commercial Components



Micro Commercial Components  
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**CLD20**

**20mA Current  
Limiting Diode**

## Features

- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Wide operating voltage range
- Immediate turn-on
- Negative temperature coefficient
- ESD Protected up to 6KV (HBM)

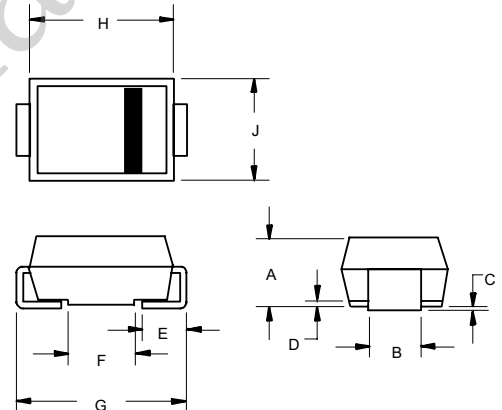
## Maximum Ratings

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C

| RATING                | SYMBOL         | VALUE | UNITS |
|-----------------------|----------------|-------|-------|
| Anode-Cathode Voltage | Vak max        | 45    | V     |
| Reverse Voltage       | V <sub>R</sub> | 500   | mV    |

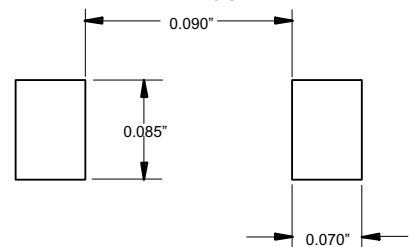
Notes: 1. High Temperature Solder Exemption Applied, see EU Directive Annex Notes 7.

**DO-214AC  
(SMA) (LEAD FRAME)**



| DIM | INCHES |      | MM   |      | NOTE |
|-----|--------|------|------|------|------|
|     | MIN    | MAX  | MIN  | MAX  |      |
| A   | .079   | .096 | 2.00 | 2.44 |      |
| B   | .050   | .064 | 1.27 | 1.63 |      |
| C   | .002   | .008 | .05  | .20  |      |
| D   | ---    | .02  | ---  | .51  |      |
| E   | .030   | .060 | .76  | 1.52 |      |
| F   | .065   | .091 | 1.65 | 2.32 |      |
| G   | .189   | .220 | 4.80 | 5.59 |      |
| H   | .157   | .181 | 4.00 | 4.60 |      |
| J   | .090   | .115 | 2.25 | 2.92 |      |

**SUGGESTED SOLDER  
PAD LAYOUT**

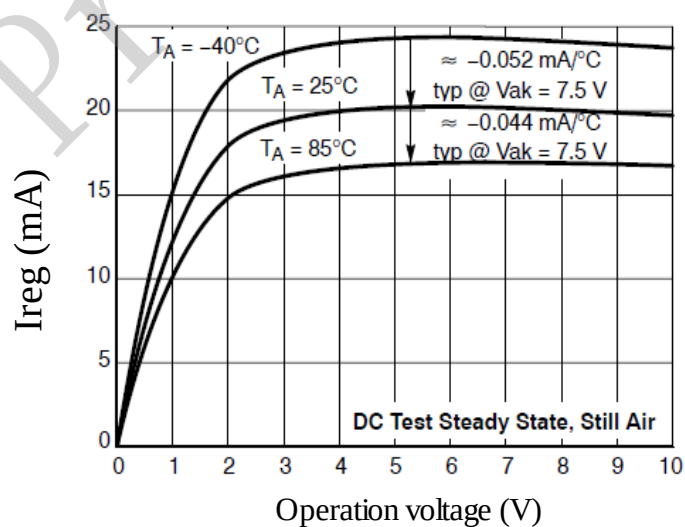
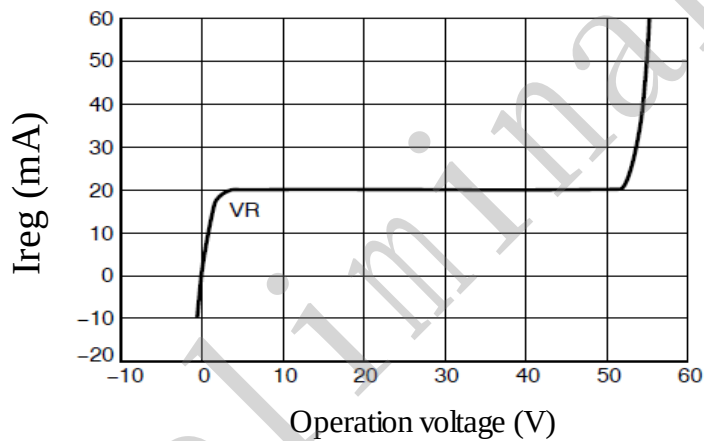


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**ELECTRICAL CHARACTERISTICS @25°C**

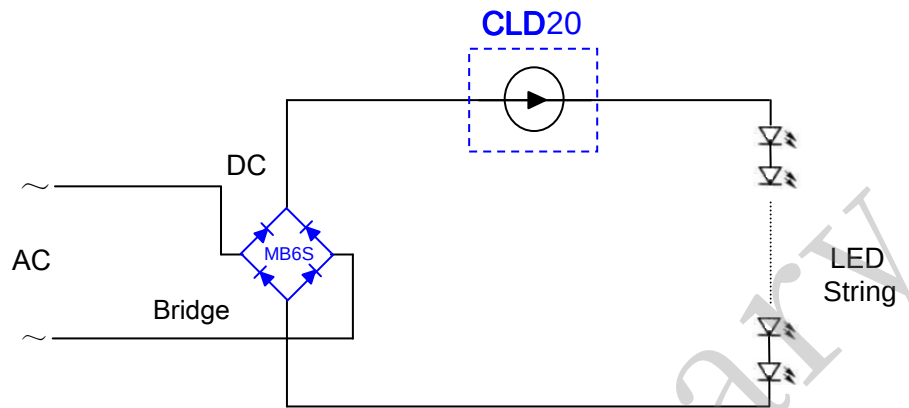
| Part number | Steady Current $I_{reg}(SS)$ |              |             | Limiting Voltage<br>@ 80% $I_{reg}$ | Test Voltage | Peak<br>Operating<br>Voltage | Rating Voltage |
|-------------|------------------------------|--------------|-------------|-------------------------------------|--------------|------------------------------|----------------|
|             | Min<br>(mA)                  | Typ.<br>(mA) | Max<br>(mA) | Max<br>(V)                          | (V)          | (V)                          | Max<br>(V)     |
| CLD20       | 17                           | 20           | 23          | 4.5                                 | 10           | 45                           | 25             |

Performance curve for Current Limiting Diode



# CLD20

## Application



Type Application Circuit  
( 20mA each LED String)

Number of LED's that can be connected is determined by:

$$\text{LEDs} = (\text{Vdc} - \text{Vak}) / \text{LED } V_F$$

Example:  $V_{ac}=110V$ , CLD  $V_{ak}=45V$ , LED  $V_F=3.5V@20mA$

Using our P/N:MB6S bridge for whole wave rectifier

After rectifier, Output  $V_{dc}=150V$

$(150V_{dc} - 45V_{dc}) / 3.5V_{dc} = 30$  LEDs in series.

## Ordering Information

| Device           | Packing              |
|------------------|----------------------|
| (Part Number)-TP | Tape&Reel;5Kpcs/Reel |

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