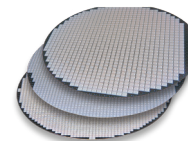


RoHS & REACH Compliant

## CPL03-CMJD Series: Bare Die Current Limiting Diodes\*

\*ALSO REFERRED TO AS CURRENT REGULATING DIODE



Central Semiconductor's **CPL03-CMJD series of Bare Die Current Limiting Diodes** was designed to meet designers' requirements for devices to maintain a constant current over a wide voltage range. Many times, current limiting resistors are required in designs to regulate current and power load circuitry. With the CPL03-CMJD series, the desired regulated current can be applied directly the load without the need for any passive components. This not only ensures that load circuitry has a safe and regulated current, but it allows engineers to design with an almost ideal current source.

### Features

- Constant current range
- Wide operating voltage
- High input impedance

### Applications

- LED lighting strings
- Light dimming systems
- Alarm systems
- On/off indicators
- Differential amplifiers

### Benefits

- Space savings
- Replacement for current limiting resistors
- Active current source performance
- Energy efficiency

Central Part No.	Maximum Ratings ( $T_A = 25^\circ\text{C}$ )		Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
	Peak Operating Voltage	Operating & Junction Storage Temperature	Regulator Current (Note 1)			Minimum Dynamic Impedance	Minimum Knee Impedance	Maximum Limiting Voltage	Temperature Coefficient (Note 2)
	$P_{OV}$	$T_J, T_{stg}$	$I_P @ V_T=25V$			$Z_T @ V_T=25V$	$Z_K @ V_K=6.0V$	$V_L @ I_L=0.8 \times I_P \text{ MIN}$	TC
(V)	( $^\circ\text{C}$ )	MIN (mA)	NOM (mA)	MAX (mA)	( $\text{M}\Omega$ )	(k $\Omega$ )	(V)	(%/ $^\circ\text{C}$ )	
CPL03-CMJDH080	50	-55 to +150	6.56	8.2	9.84	0.32	15	3.1	-0.25 to -0.45
CPL03-CMJDH100	50	-55 to +150	8.0	10	12	0.17	6.0	3.5	-0.25 to -0.45
CPL03-CMJDH120	50	-55 to +150	9.6	12	14.4	0.08	3.0	3.8	-0.25 to -0.45
CPL03-CMJDH150	50	-55 to +150	12	15	18	0.03	2.0	4.3	-0.25 to -0.45
CPL03-CMJDH180	50	-55 to +150	16	18	20	0.02	1.8	4.6	-0.25 to -0.45
CPL03-CMJDH220	50	-55 to +150	20	22.5	25	0.01	1.6	5.3	-0.25 to -0.45
CPL03-CMJD0130	100	-55 to +150	0.05	0.13	0.21	6.0	2,000	0.6	+2.10 to +0.10
CPL03-CMJD0300	100	-55 to +150	0.20	0.31	0.42	4.0	1,000	0.8	+0.40 to -0.20
CPL03-CMJD0500	100	-55 to +150	0.40	0.515	0.63	2.0	500	1.1	+0.15 to -0.25
CPL03-CMJD0750	100	-55 to +150	0.60	0.76	0.92	1.0	200	1.4	0.0 to -0.32
CPL03-CMJD1000	100	-55 to +150	0.88	1.1	1.32	0.65	100	1.7	-0.10 to -0.37
CPL03-CMJD1500	100	-55 to +150	1.28	1.5	1.72	0.45	70	2.0	-0.13 to -0.40
CPL03-CMJD2000	100	-55 to +150	1.68	2.0	2.32	0.35	50	2.3	-0.15 to -0.42
CPL03-CMJD2700	100	-55 to +150	2.28	2.69	3.1	0.30	30	2.7	-0.18 to -0.45
CPL03-CMJD3500	100	-55 to +150	3.0	3.55	4.1	0.25	20	3.2	-0.20 to -0.47
CPL03-CMJD4500	100	-55 to +150	3.9	4.5	5.1	0.20	10	3.7	-0.22 to -0.50
CPL03-CMJD5750	100	-55 to +150	5.0	5.75	6.5	0.05	5.0	4.5	-0.25 to -0.53

Notes:  
 1) Pulsed method: pulse width (ms) = 27.5 divided by  $I_P \text{ NOM}$  (mA)  
 2) The temperature coefficient is measured between  $+25^\circ\text{C}$  and  $+50^\circ\text{C}$ .

#### SPICE Models and other technical resources:

Visit [www.centrasemi.com](http://www.centrasemi.com) to download SPICE models for these devices.

#### RoHS and REACH compliance declarations

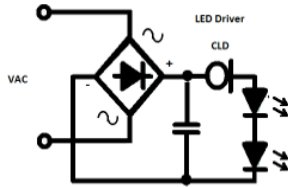
Visit the Quality section of Central's website to access.

# CPL03-CMJD Series: Bare Die Current Limiting Diodes

## Example Applications:

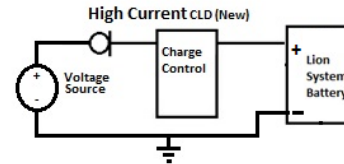
### LED Driver

Transient current draw can be as much as 250 times the rating of the LED. CLDs provide protection and well-regulated steady-state drive current.



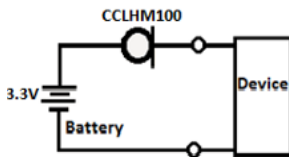
### Battery Charging Protector

CLDs protect against power source noise, excessive drive current or incorrect connections to source.



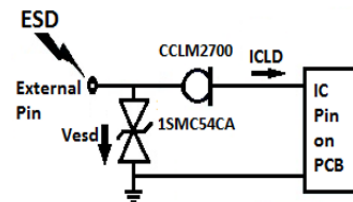
### Battery Life Extender

By eliminating the current consumed from management ICs and device load variations, longer battery life can be attained as well as buffering against current surges.



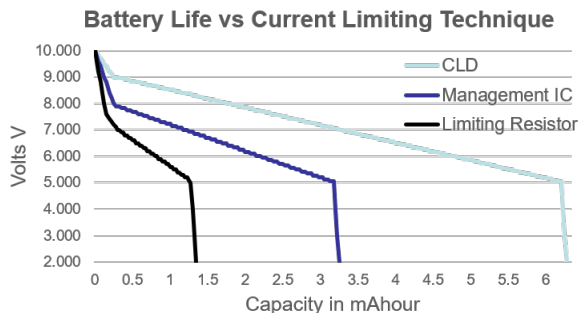
### Surge Stopper

A surge stopper implements over-current and transient voltage suppression (TVS) on any device input to enable ESD over-voltage protection and provide over-current latch-up immunity.



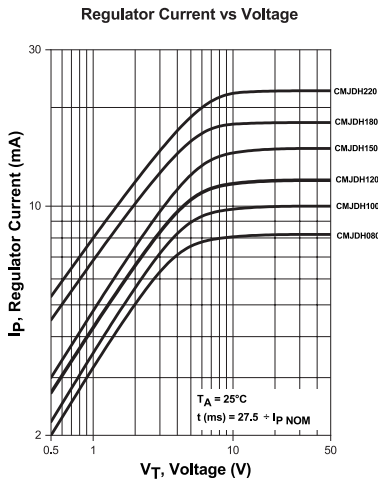
The battery performance shown below is characterized by energy storage (capacity) "mAh" and Power per Hour.

$$\text{Power per Hour} = \text{mAh} / V$$

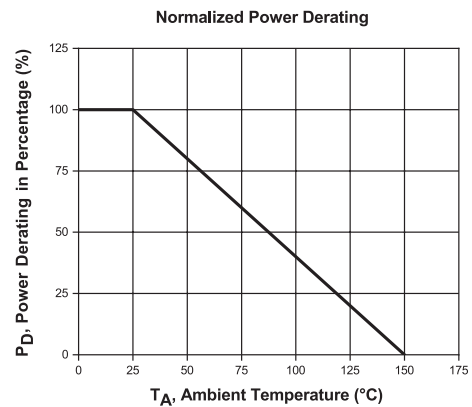
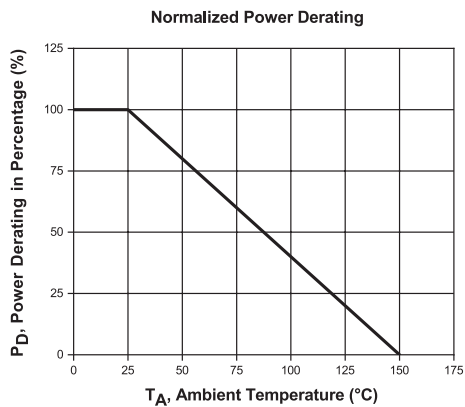
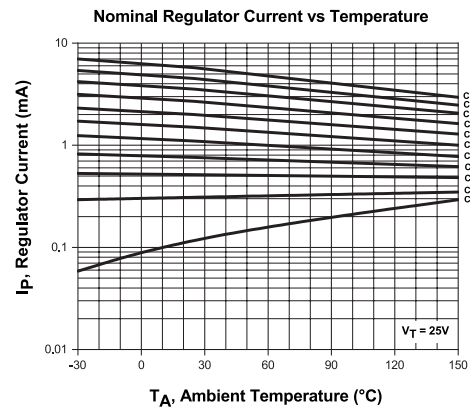
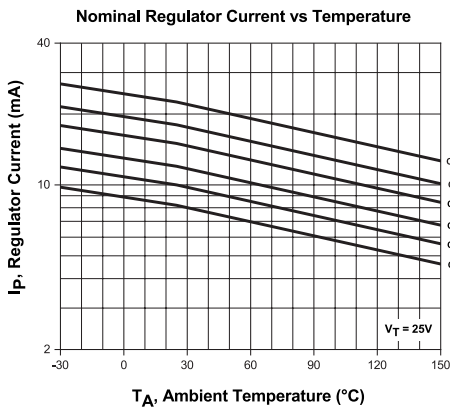
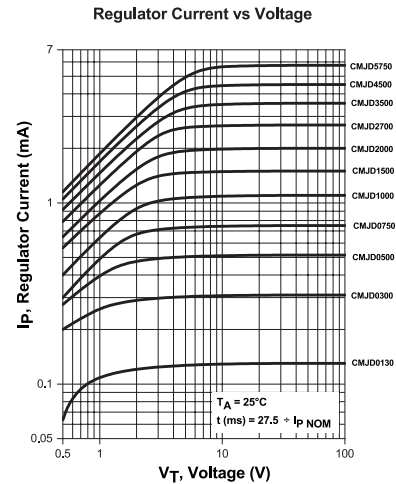


# CPL03-CMJD Series: Bare Die Current Limiting Diodes

Typical Electrical Characteristics:  
CPL03-CMJDH080 thru CPL03-CMJDH220



Typical Electrical Characteristics:  
CPL03-CMJD0130 thru CPL03-CMJD5750



For more information on Central's products and solutions:

Call us at: **1.631.435.1110**

Or view online: [www.centrasemi.com/featured-products](http://www.centrasemi.com/featured-products)

