

Product Brief



RoHS & REACH Compliant

CMJD Series: Current Limiting Diodes* in DFN123F

*ALSO REFERRED TO AS CURRENT REGULATING DIODE



Central Semiconductor's **CMJD series of 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 Central's new 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. Featuring the low profile (1.00mm) DFN123F package, these devices are ideal for applications requiring a space-saving current limiting diode. Central's CMJD series is also available in bare die form.

Features

- Constant current range
- Wide operating voltage
- High input impedance
- Low profile DFN123F package
- Also available in bare die

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)							Marking Code
	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)	($M\Omega$)	($k\Omega$)	(V)	($\%/^\circ\text{C}$)	
CMJDH080	50	-55 to +150	6.56	8.2	9.84	0.32	15	3.1	-0.25 to -0.45	C822
CMJDH100	50	-55 to +150	8.0	10	12	0.17	6.0	3.5	-0.25 to -0.45	C103
CMJDH120	50	-55 to +150	9.6	12	14.4	0.08	3.0	3.8	-0.25 to -0.45	C123
CMJDH150	50	-55 to +150	12	15	18	0.03	2.0	4.3	-0.25 to -0.45	C153
CMJDH180	50	-55 to +150	16	18	20	0.02	1.8	4.6	-0.25 to -0.45	C183
CMJDH220	50	-55 to +150	20	22.5	25	0.01	1.6	5.3	-0.25 to -0.45	C223
CMJD0130	100	-55 to +150	0.05	0.13	0.21	6.0	2,000	0.6	+2.10 to +0.10	C101
CMJD0300	100	-55 to +150	0.20	0.31	0.42	4.0	1,000	0.8	+0.40 to -0.20	C301
CMJD0500	100	-55 to +150	0.40	0.515	0.63	2.0	500	1.1	+0.15 to -0.25	C501
CMJD0750	100	-55 to +150	0.60	0.76	0.92	1.0	200	1.4	0.0 to -0.32	C701
CMJD1000	100	-55 to +150	0.88	1.1	1.32	0.65	100	1.7	-0.10 to -0.37	C102
CMJD1500	100	-55 to +150	1.28	1.5	1.72	0.45	70	2.0	-0.13 to -0.40	C152
CMJD2000	100	-55 to +150	1.68	2.0	2.32	0.35	50	2.3	-0.15 to -0.42	C202
CMJD2700	100	-55 to +150	2.28	2.69	3.1	0.30	30	2.7	-0.18 to -0.45	C272
CMJD3500	100	-55 to +150	3.0	3.55	4.1	0.25	20	3.2	-0.20 to -0.47	C352
CMJD4500	100	-55 to +150	3.9	4.5	5.1	0.20	10	3.7	-0.22 to -0.50	C452
CMJD5750	100	-55 to +150	5.0	5.75	6.5	0.05	5.0	4.5	-0.25 to -0.53	C562

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, Package Details and other technical resources:

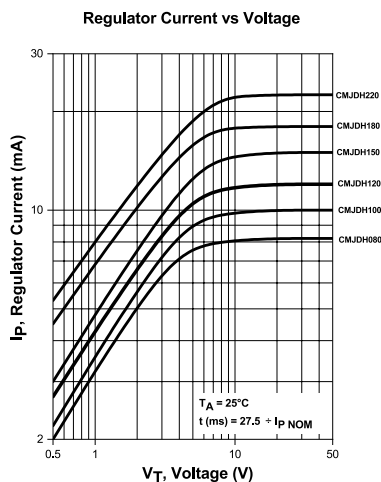
Engineering resources are available at www.centalsemi.com.

RoHS and REACH compliance declarations

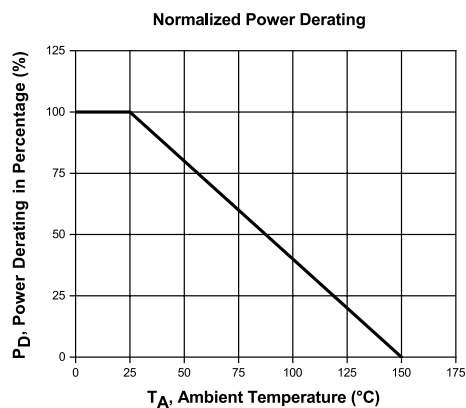
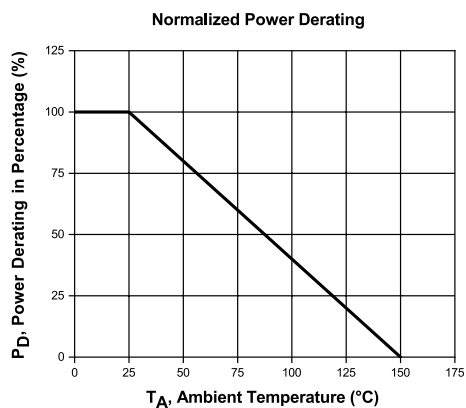
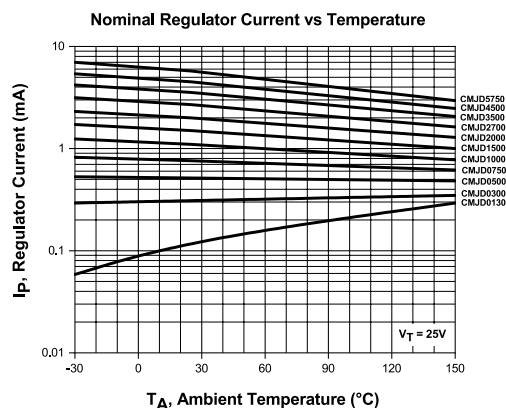
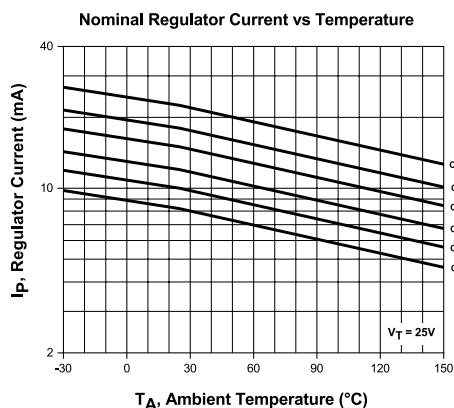
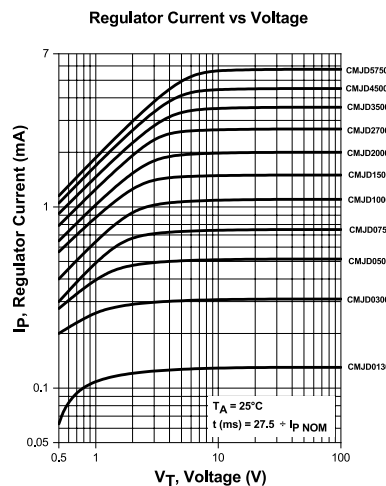
Visit the Quality section of Central's website to access.

CMJD Series: Current Limiting Diodes in DFN123F

Typical Electrical Characteristics:
CMJDH080 thru CMJDH220



Typical Electrical Characteristics:
CMJD0130 thru CMJD5750

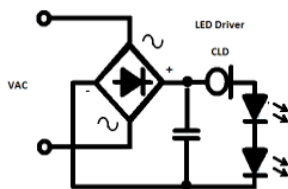


CMJD Series: Current Limiting Diodes in DFN123F

Example Applications:

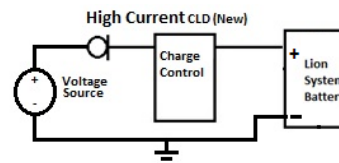
LED Driver

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.



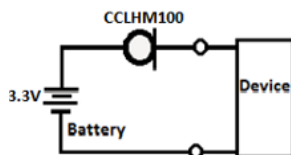
Battery Charging Protector

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



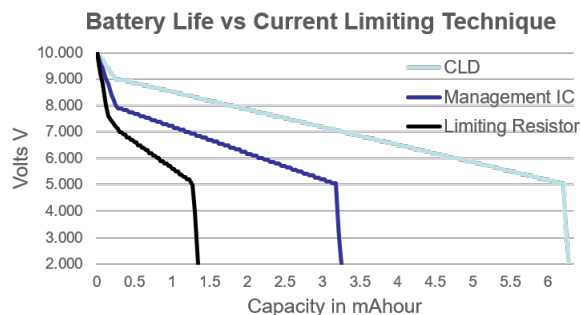
Battery Life Extender

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.



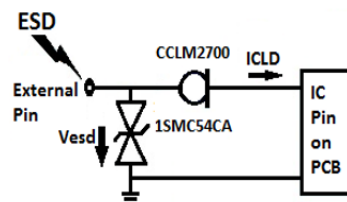
The battery performance shown below is characterized by energy storage (capacity) "mAh" and Power per Hour.

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



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.

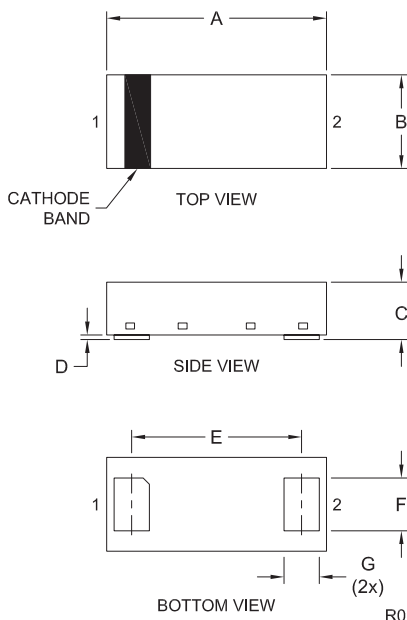


Custom solutions also available:

- custom device development
- special wafer diffusions
- custom interconnect options
- packaging options
- specialized parametric testing
- up-screening to MIL standard equivalents or to customer-specific criteria

CMJD Series: Current Limiting Diodes in DFN123F

Mechanical Drawing: DFN123F

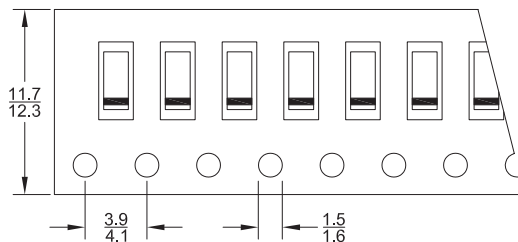


DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.144	0.152	3.65	3.85
B	0.059	0.067	1.50	1.70
C	0.031	0.039	0.80	1.00
D	0.000	0.002	0.00	0.05
E	0.110	0.118	2.80	3.00
F	0.033	0.037	0.85	0.95
G	0.020	0.028	0.50	0.70

DFN123F (REV: R0)

Part Marking: 4-6 Character
Alpha/Numeric Code

Tape Dimensions and Orientation (Dimensions in mm)

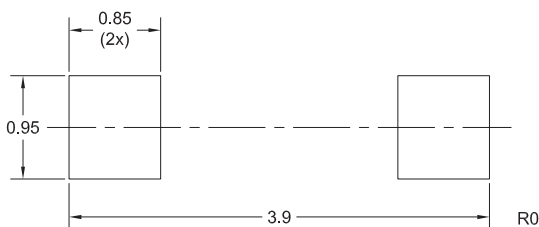


Devices are taped in
accordance with
Electronic Industries
Association Standard
EIA-481-D

Direction of Unreeling

Tape Width: 12mm

Mounting Pad Geometry (Dimensions in mm)



Packaging Base

Reel Size	Quantity
7"	3,000 pcs.
13"	10,000 pcs.

Reel Packing Information

Reel Size	Reels per Box (Maximum)	Parts per Box (Maximum)	Box Dimensions		Shipping Weight (Max.)	
			INCH	CM	LB	KG
7"	9	27,000	9x9x5	23x23x13	7	4
	18	54,000	9x9x9	23x23x23	14	7
	40	120,000	21x9x9	53x23x23	30	14
	108	324,000	27x9x17	69x23x43	78	36
13"	5	25,000	15x4x15	38x10x38	7	4
	14	70,000	15x15x9	38x38x23	17	8
	26	130,000	15x15x18	38x38x46	30	14

Ordering Information

Reel Size	Orderable Part No.
7"	Add "TR" as suffix to Central part no. (example: CMJDH080 TR)
13"	Add "TR13" as suffix to Central part no. (example: CMJDH080 TR13)

(Also available in bare die form)

For more information on Central's products and solutions:

Call us at: **1.631.435.1110**

Or view online: **www.centrasemi.com/featured-products**

Custom
Solutions
Available

Just
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