

CMJA5050

**SURFACE MOUNT SILICON
ADJUSTABLE
CURRENT LIMITING DIODE
50V, 50-80mA**



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMJA5050 is a silicon field effect adjustable current regulating diode designed for applications requiring a constant current over a wide voltage range.

MARKING CODE: CA50

FEATURES:

- Constant current range
- Adjustable regulation up to 80mA
- Wide operating voltage
- Negative temperature coefficient for LED protection
- Eliminates need for additional regulation

APPLICATIONS:

- LED lighting and displays
- AC lighting panels
- Decorative lighting
- Test and measurement equipment

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$)

Peak Operating Voltage

Power Dissipation

Power Dissipation (Note 1)

Operating and Storage Junction Temperature

Thermal Resistance

Thermal Resistance (Note 1)

Note 1: Mounted on 300mm² 4-layer PCB with 2-ounce copper traces.

SYMBOL

P_{OV}

50

UNITS

V

P_D

570

mW

P_D

1.0

W

T_J, T_{stg}

-65 to +150

$^{\circ}\text{C}$

Θ_{JA}

220

$^{\circ}\text{C/W}$

Θ_{JA}

125

$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$)

Steady State Regulator Current*			Maximum Limiting Voltage	Maximum Temperature Coefficient**
$I_L @ V_T=12\text{V}$			$V_L @ I_L=0.8 \times I_P \text{ MIN}$	TC
MIN mA	NOM mA	MAX mA	V	mA/ $^{\circ}\text{C}$
45	50	55	8.5	-0.3

*Measured after applying DC test voltage for 90 seconds duration or greater with device mounted on FR-4 PC Board with 2oz. copper mounting pad area of 300mm² in still air.

**Measured between 25 $^{\circ}\text{C}$ and 50 $^{\circ}\text{C}$.

Pulsed Regulator Current*			Maximum Limiting Voltage	Maximum Temperature Coefficient**
$I_P @ V_T=20\text{V}$			$V_L @ I_L=0.8 \times I_P \text{ MIN}$	TC
MIN mA	NOM mA	MAX mA	V	mA/ $^{\circ}\text{C}$
72	80	88	8.0	-0.3

*Pulse width $\leq 1.0\text{ms}$

**Measured between 25 $^{\circ}\text{C}$ and 50 $^{\circ}\text{C}$.

R3 (10-August 2020)

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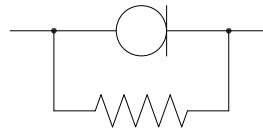


Adjustment Compensation Resistance:

Placing resistors in parallel with a CLD allows the regulator current to be adjusted from 50mA to 80mA. This also corrects any current decrease when the applied voltage increases due to self heating.

REGULATOR CURRENT PER RESISTANCE:

Steady State Regulator Current $I_L @ V_T=12V$			Resistor (1/4W)
MIN mA	NOM mA	MAX mA	Ω
45	50	55	none*
49.5	55	60.5	1000
54	60	66	800
58.5	65	71.5	600
67.5	75	82.5	500
72	80	88	400



*A 3000 Ω resistor may be added to achieve more linear regulator current characteristics.

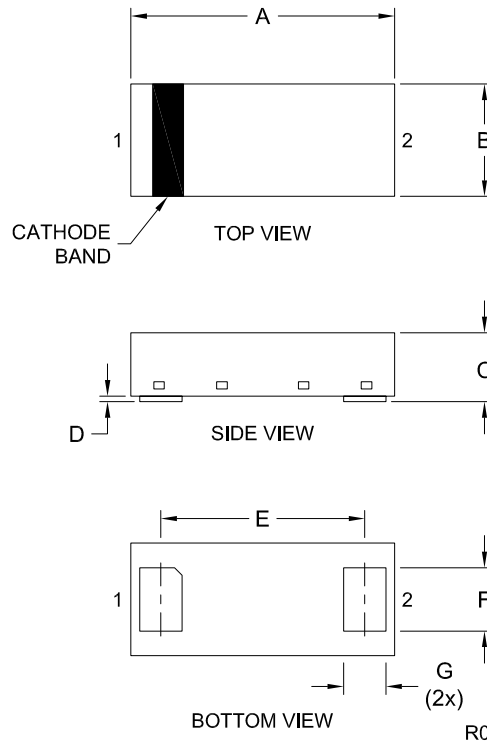
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DFN123F CASE - MECHANICAL OUTLINE



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)

LEAD CODE:

- 1) Cathode
- 2) Anode

MARKING CODE: CA50

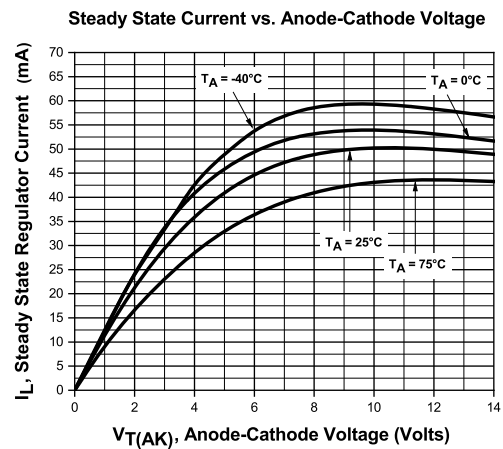
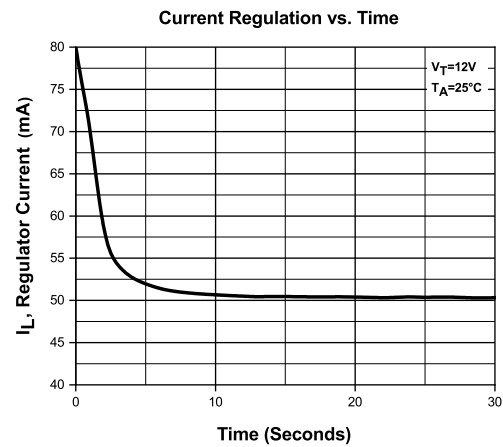
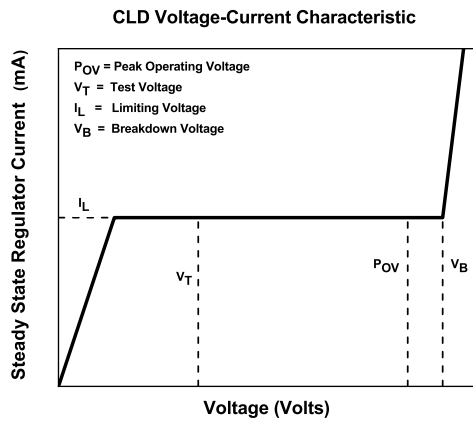
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TYPICAL ELECTRICAL CHARACTERISTICS



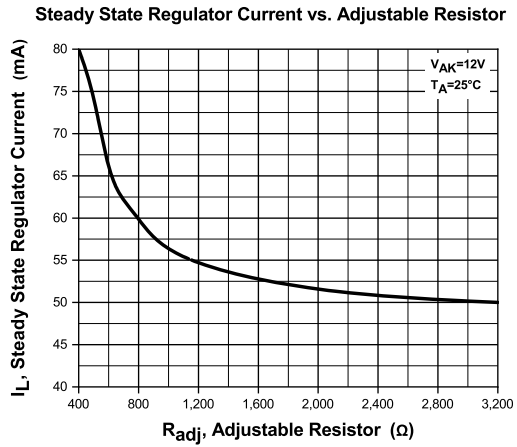
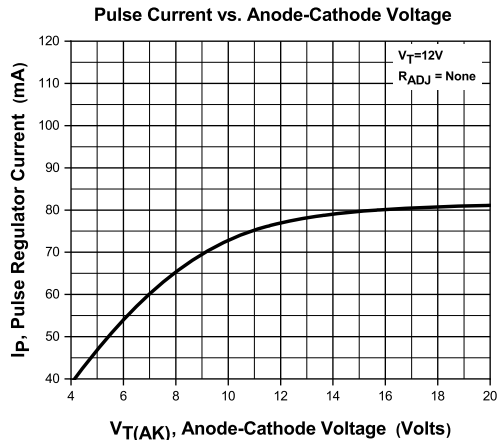
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TYPICAL ELECTRICAL CHARACTERISTICS



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OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

CONTACT US

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