CMJA5050

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



DFN123F CASE

www.centralsemi.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

APPLICATIONS:

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

FEATURES:

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

MAXIMUM RATINGS: (T_A=25°C)	**SYMBOL**		**UNITS**
Peak Operating Voltage	P_{OV}	50	V
Power Dissipation	P_D	570	mW
Power Dissipation (Note 1)	P_D	1.0	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	°C
Thermal Resistance	Θ_{JA}	220	°C/W
Thermal Resistance (Note 1)	Θ_{JA}	125	°C/W

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

ELECTRICAL CHARACTERISTICS: (T_A=25°C)

Steady State Regulator Current* I_L @ V_T=12V			**Maximum Limiting Voltage** V_L @ I_L=0.8 x I_P MIN	**Maximum Temperature Coefficient**** TC
MIN mA	**NOM mA**	**MAX mA**	**V**	**mA/°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 300mm^2 in still air.
**Measured between 25°C and 50°C.

Pulsed Regulator Current* I_P @ V_T=20V			**Maximum Limiting Voltage** V_L @ I_L=0.8 x I_P MIN	**Maximum Temperature Coefficient**** TC
MIN mA	**NOM mA**	**MAX mA**	**V**	**mA/°C**
72	80	88	8.0	-0.3

*Pulse width ≤1.0ms
**Measured between 25°C and 50°C.

R3 (10-August 2020)

CMJA5050

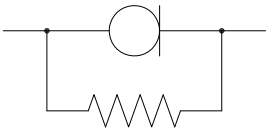
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Adjustment Compensation Resistance:
Placing resistors in parallel with a CLD allows the regulator current to be adjusted from 50mA to 80mA. This also corrects any current decrease when the applied voltage increases due to self heating.

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

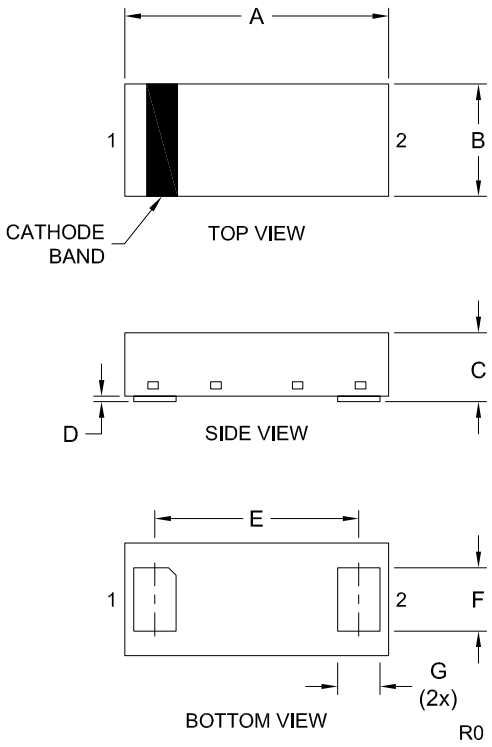
*A 3000Ω resistor may be added to achieve more linear regulator current characteristics.



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DFN123F CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	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

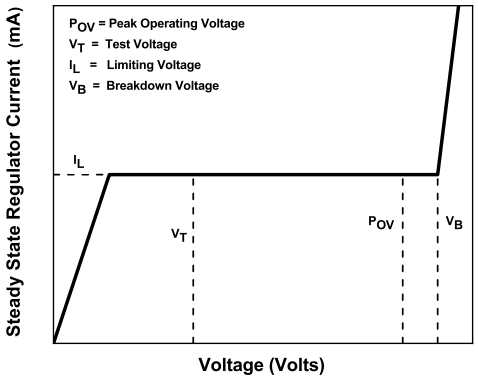
MARKING CODE: CA50

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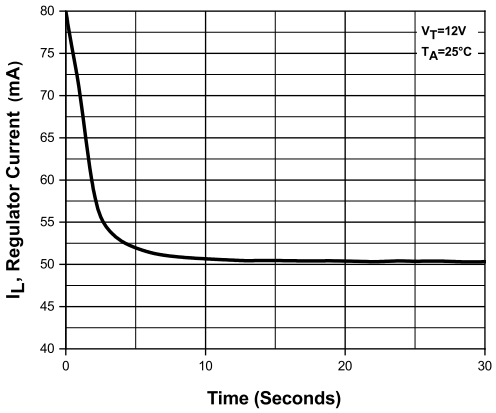
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TYPICAL ELECTRICAL CHARACTERISTICS

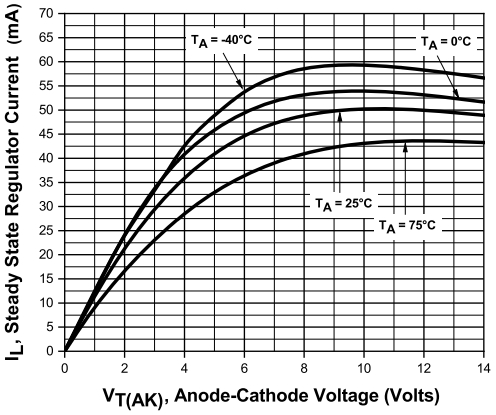
CLD Voltage-Current Characteristic



Current Regulation vs. Time



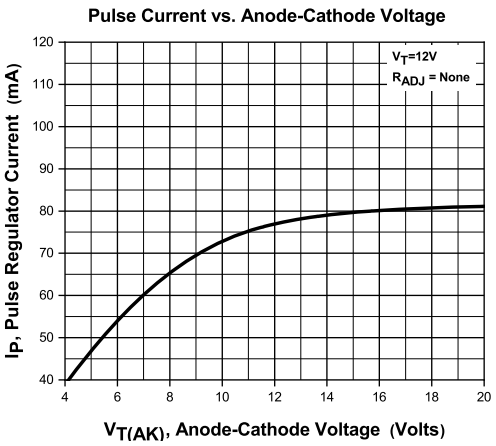
Steady State Current vs. Anode-Cathode Voltage

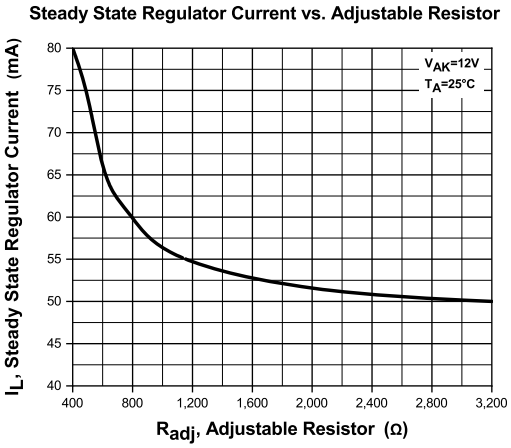


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TYPICAL ELECTRICAL CHARACTERISTICS





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

Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.
145 Adams Avenue
Hauppauge, NY 11788 USA
Main Tel: (631) 435-1110
Main Fax: (631) 435-1824
Support Team Fax: (631) 435-3388
www.centralsemi.com

Worldwide Field Representatives:
www.centralsemi.com/wwreps

Worldwide Distributors:
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