

CMJA5050

Adjustable Current Limiting Diode

in the DFN123F package



Rethink the Possibilities[™]

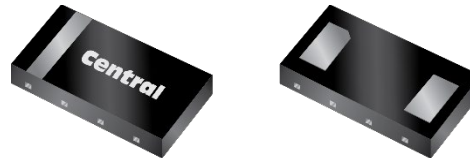
Discretes do Matter[™]



CMJA5050

Current Limiting Diode

New Adjustable Current Limiting Diode



DFN123F

New CMJA5050

- Market Drivers:
 - Cost effective regulated current source
 - Small package outline
 - Test and measurement end-markets
 - Solid State Lighting (SSL) end-markets
 - Medical end-markets
- Competitive Solution
 - Central's solution has a smaller package outline
 - Central's solution has a lower profile
 - Central's solution has a high 50 volt capability
- 50V with 50mA to 80mA adjustable range



New CMJA5050



FEATURES

- Provides constant current
- Adjustable regulation currents (50mA -80mA)
- Industry standard DFN package

APPLICATIONS

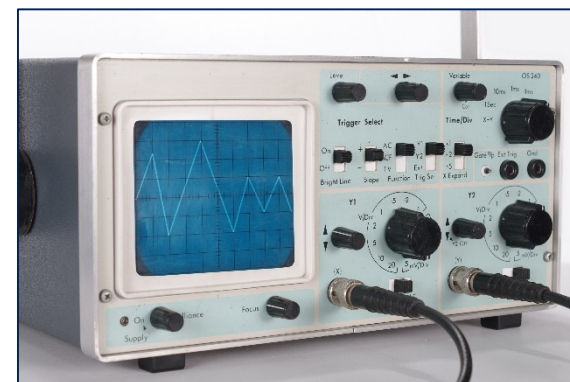
- Solid State Lighting (SSL)
- Test equipment
- Security devices and Industrial controllers

BENEFITS

- Efficient regulation of current source
- Replaces the need for several different discrete devices to create current regulation

CURRENT STATUS

- The CMJA5050 will be available Q1-2021
- Sample available upon request



New CMJA5050



Features

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

Applications

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

Benefits

- Eliminates need for additional regulation
- Space savings
- Low profile package
- RoHS and REACH compliant

Steady State Regulator Current*			Maximum Limiting Voltage	Maximum Temperature Coefficient**
$I_L @ V_T=12V$			$V_L @ I_L=0.8 \times I_P \text{ MIN}$	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 300mm² in still air.

**Measured between 25°C and 50°C.

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

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

**Measured between 25°C and 50°C.

New 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

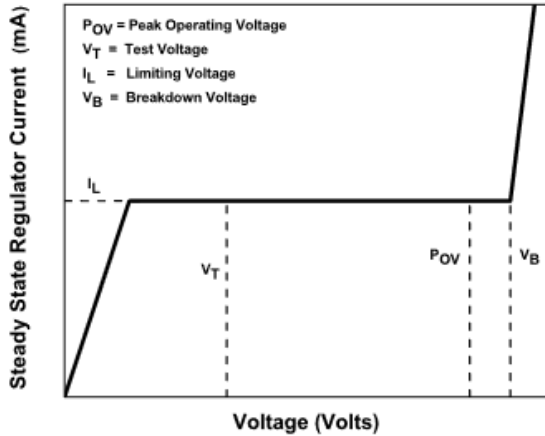
***A 3000 Ω resistor may be added to achieve more linear regulator current characteristics.



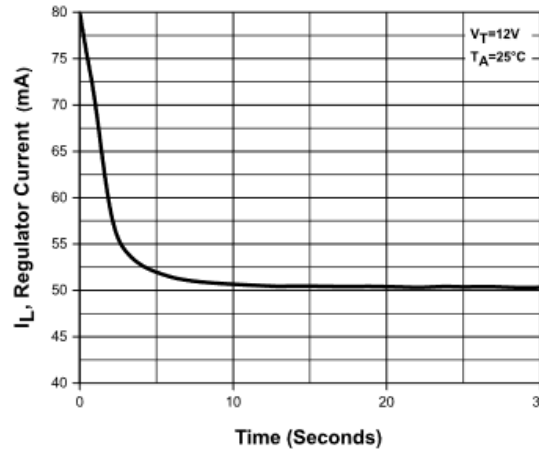
New CMJA5050



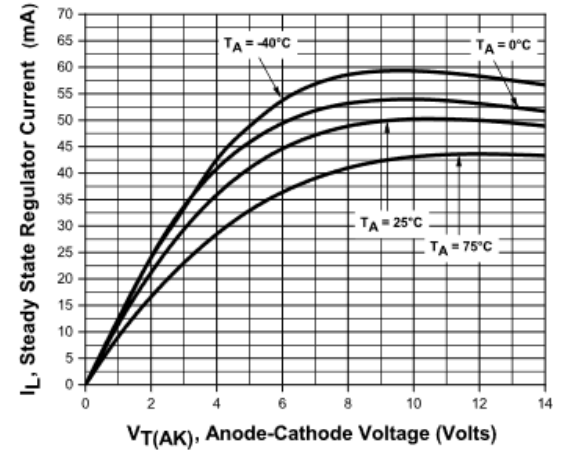
CLD Voltage-Current Characteristic



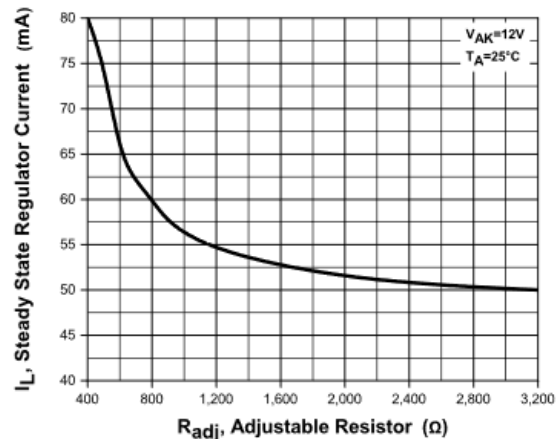
Current Regulation vs. Time



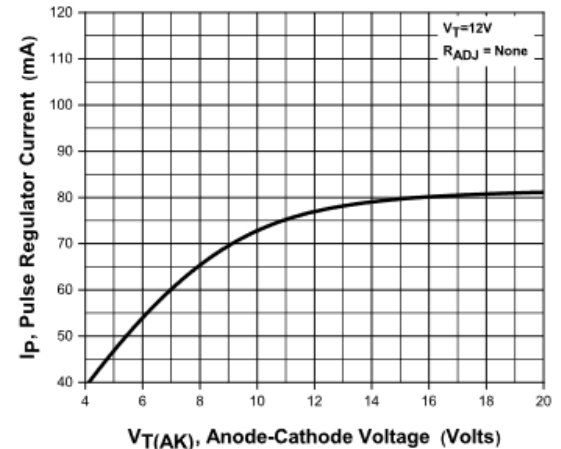
Steady State Current vs. Anode-Cathode Voltage



Steady State Regulator Current vs. Adjustable Resistor



Pulse Current vs. Anode-Cathode Voltage

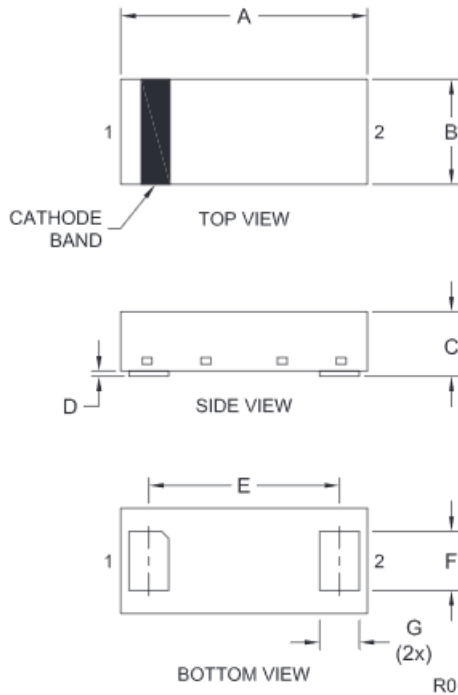


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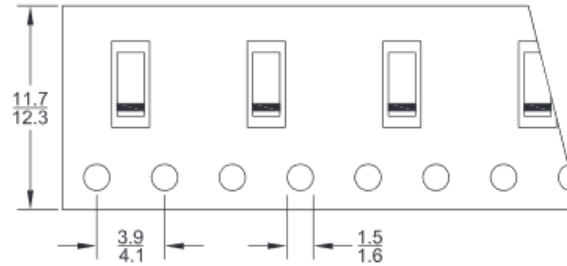


DFN123F

Mechanical Drawing:
DFN123F



Tape Dimensions and Orientation
(Dimensions in mm)



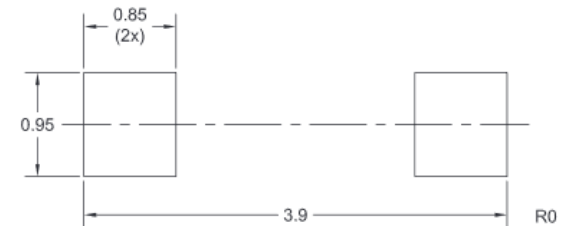
Devices are taped in accordance with Electronic Industries Association Standard EIA-481-D

Tape Width: 12mm

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)

Mounting Pad Geometry
(Dimensions in mm)



Part Marking: 4-6 Character
Alpha/Numeric Code



New CMJA5050



DFN123F

Reel Packing Information

Reel Size	Reels per Box (Maximum)	Parts per Box (Maximum)	Box Dimensions		Shipping Weight (Max.)	
			INCH	CM	LB	KG
13"	5	25,000	15x4x15	38x10x38	7	4
	14	70,000	15x15x9	38x38x23	17	8
	26	130,000	15x15x18	38x38x46	30	14

Packaging Base

Reel Size	Quantity
13"	5,000 pcs.

Ordering Information & Marking Code

Central Part No.	Marking Code	Orderable Part No.
CMJA5050	CA50	Add "TR13" as suffix to Central Part No. (ex: CMJA5050 TR13)



New CMJA5050



Product Brief

RoHS & REACH Compliant

CMJA5050
50V, 50-80mA Adjustable Current Limiting Diode in the DFN123F package

Central Semiconductor's **CMJA5050** is a 50V Current Limiting Diode (CLD) developed to meet design requirements for maintaining a constant current with adjustable current regulation from 50mA to 80mA. This adjustable device eliminates the need to use several individual different CLDs in order to meet the current regulation values required. Packaged in the low profile DFN123F surface mount case, this device is ideal for any application requiring a space saving current regulating device, including LED lighting and test/measurement equipment.

Features

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

Applications

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

Benefits

- Eliminates need for additional regulation
- Space savings
- Low profile package
- RoHS and REACH compliant

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

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

*Measured after applying DC test voltage for 90 seconds duration or greater with device mounted on FR-4 PCB with 2oz. copper mounting pad area of 300mm² in still air.
**Measured between 25°C and 50°C.

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			Resistor (1/4W)
$I_L @ V_f=12V$			
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.

Custom solutions also available:

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

SPICE Models and other technical resources: Visit www.centralsemi.com to download SPICE models.

RoHS and REACH compliance declarations: Visit the Quality section of Central's website to access.

Central Semiconductor Corp. - 145 Adams Avenue - Hauppauge, NY 11788 - USA - www.centralsemi.com

Product Brief

CMJA5050

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

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

MAXIMUM RATINGS: (T_A=25°C)

SYMBOL	UNITS
Peak Operating Voltage	V
Power Dissipation	mW
Power Dissipation (Note 1)	W
Operating and Storage Junction Temperature	°C
Thermal Resistance	°C/W

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

APPLICATIONS:

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

ELECTRICAL CHARACTERISTICS: (T_A=25°C)

Steady State Regulator Current*			Maximum Limiting Voltage		Maximum Temperature Coefficient**	
$I_L @ V_f=12V$			$V_L @ I_L=0.8 \times I_p \text{ MIN}$		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 PCB with 2oz. copper mounting pad area of 300mm² in still air.
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Pulsed Regulator Current*			Maximum Limiting Voltage		Maximum Temperature Coefficient**	
$I_p @ V_f=20V$			$V_L @ I_L=0.8 \times I_p \text{ MIN}$		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)

Datasheet



New CMJA5050

- Standard Packing Base: 5,000 on 13" Reel
- Inventory: Available Q1-2021
- Distribution:

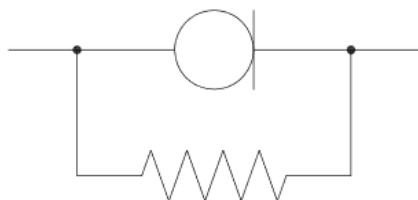


- Social media, ads, press release in process
- Available documents:
 - Datasheet
 - Product Brief



New CMJA5050

- Adjustable Current Limiting Diodes (CLDs) in the DFN-123F
 - 50V, 50-80mA



For further information, please contact your Central Sales representation.



www.centrasemi.com
Tel: 631.435.1110

Superior service is our passion

CMJA5050

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in the DFN123F package



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