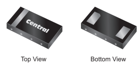
CMJD0130
THRU
CMJD5750

SURFACE MOUNT SILICON CURRENT LIMITING DIODES



DFN123F CASE

www.centralsemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMJD0130 series devices are silicon field effect current regulator diodes designed for applications requiring a constant current over a wide voltage range. These devices are manufactured in the epoxy molded, low profile DFN123F case. Special selections of I_P (regulator current) are available for critical applications.

MARKING: SEE MARKING CODES ON ELECTRICAL CHARACTERISTICS TABLE

FEATURES:

- High reliability
- Special selections available
- Through hole devices available

MAXIMUM RATINGS: (T_A=25°C)	**SYMBOL**		**UNITS**
Peak Operating Voltage	P_{OV}	100	V
Power Dissipation	P_D	445	mW
Power Dissipation (Note)	P_D	780	mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	°C
Thermal Resistance	Θ_{JA}	280	°C/W
Thermal Resistance (Note)	Θ_{JA}	160	°C/W

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

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

Type	Regulator Current (Note 1) I_P @ V_T=25V			Minimum Dynamic Impedance Z_T @ V_T=25V	Minimum Knee Impedance Z_K @ V_K=6.0V	Maximum Limiting Voltage V_L @ I_L=0.8 x I_P MIN	Temperature Coefficient (Note 2) TC	Marking Code
	MIN mA	NOM mA	MAX mA	MΩ	kΩ	V	%/°C	
CMJD0130	0.05	0.13	0.21	6.0	2,000	0.6	+2.10 to +0.10	C101
CMJD0300	0.20	0.31	0.42	4.0	1,000	0.8	+0.80 to -0.20	C301
CMJD0500	0.40	0.515	0.63	2.0	500	1.1	+0.50 to -0.25	C501
CMJD0750	0.60	0.76	0.92	1.0	200	1.4	+0.20 to -0.32	C701
CMJD1000	0.88	1.1	1.32	0.65	100	1.7	-0.10 to -0.37	C102
CMJD1500	1.28	1.5	1.72	0.45	70	2.0	-0.13 to -0.40	C152
CMJD2000	1.68	2.0	2.32	0.35	50	2.3	-0.15 to -0.42	C202
CMJD2700	2.28	2.69	3.1	0.30	30	2.7	-0.18 to -0.45	C272
CMJD3500	3.0	3.55	4.1	0.25	20	3.2	-0.20 to -0.47	C352
CMJD4500	3.9	4.5	5.1	0.20	10	3.7	-0.22 to -0.50	C452
CMJD5750	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 NOM (mA)
2) The Temperature Coefficient is measured between + 25°C and +50°C.

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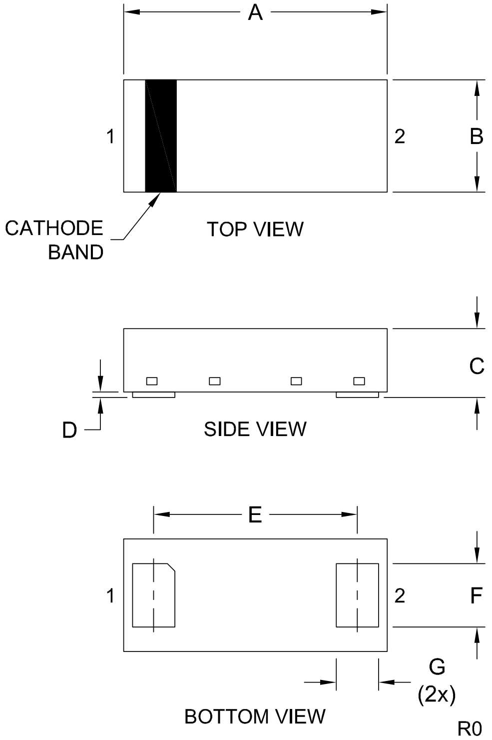
DFN123F CASE - MECHANICAL OUTLINE



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: SEE ELECTRICAL CHARACTERISTICS TABLE

R4 (14-February 2022)

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SURFACE MOUNT SILICON
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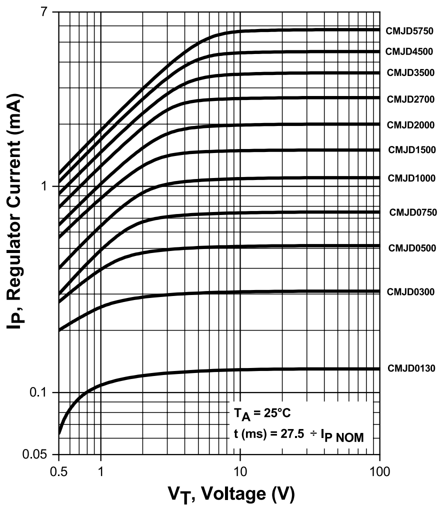
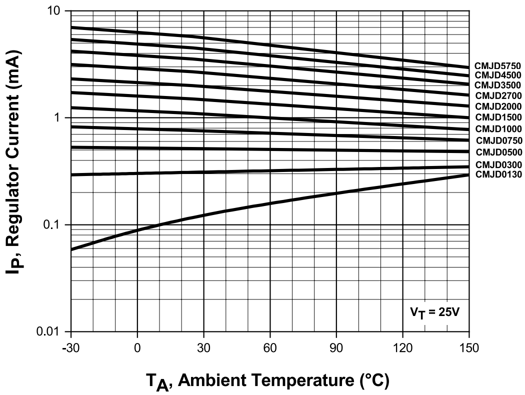
TYPICAL ELECTRICAL CHARACTERISTICS

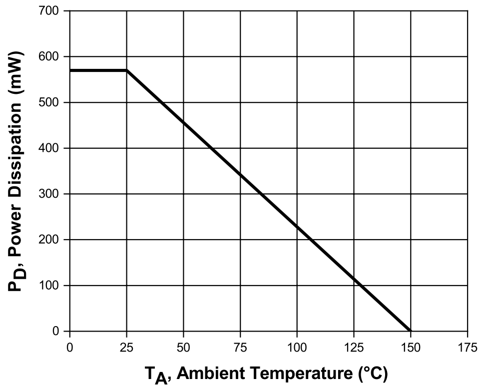
Regulator Current vs Voltage



Nominal Regulator Current vs Temperature



Power Derating



R4 (14-February 2022)

TYPICAL APPLICATIONS

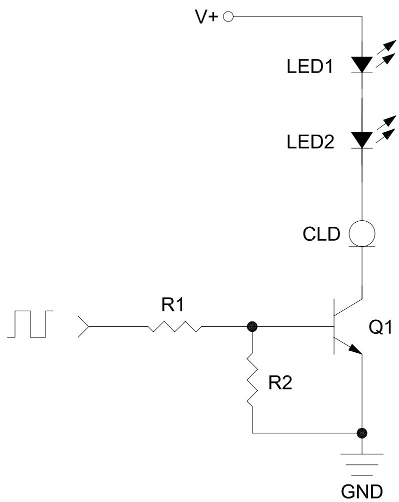


Figure 1. CLDs can be used to limit the current flowing through LED strings. Their dynamic performance make them an excellent replacement for current limiting resistors, as they allow for continuous current regulation regardless of input voltage. LED strings like this are commonly used in dimming lighting systems. By using a PWM input to control the transistor, the LED luminosity can be controlled by extending or decreasing the pulse width, allowing for control over the brightness of the LED.

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TYPICAL APPLICATIONS

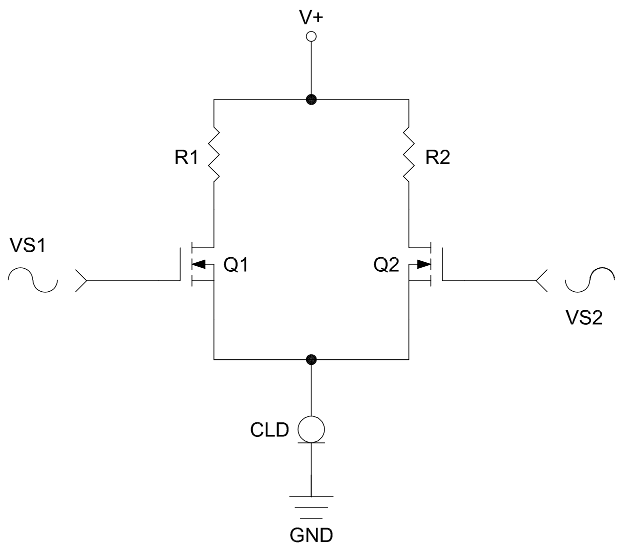

Figure 2. When designing differential amplifiers, it is essential to use a high impedance tail resistor to control both differential and common mode function. For differential signals, the tail resistor effectively splits the current amongst the transistors. This ensures proportional current increase and decrease between the transistors. The high impedance drives down the common mode gain and increases the common mode rejection ratio, thus yielding a more ideal amplifier. Ideally, an infinite impedance current source would be used in place of the tail resistor. While the ideal current source doesn't exist, CLDs serve as an excellent replacement for the tail resistor and also perform much like an active current source, both regulating the circuit to a constant current and presenting a large tail impedance. This yields a larger CMRR than using a high impedance tail resistor would.

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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