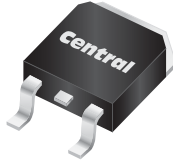


CQDD-12M3
SILICON
THREE-QUADRANT TRIAC
12 AMP, 600 VOLT



D²PAK CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CQDD-12M3 is an epoxy molded silicon TRIAC designed for full wave AC control applications featuring gate triggering in three quadrants.

MARKING: FULL PART NUMBER

APPLICATIONS:

- Motor controls
- High power inductive load switching
- General purpose AC switching

FEATURES:

- 3Q technology for noise immunity
- High commutation capability
- Triggering in three quadrants only

MAXIMUM RATINGS: ($T_C=25^\circ\text{C}$ unless otherwise noted)	SYMBOL		UNITS
Peak Repetitive Off-State Voltage	V_{DRM}, V_{RRM}	600	V
Peak One Cycle Surge Voltage, $t=10\text{ms}$ ($T_J=125^\circ\text{C}$)	V_{DSM}	700	V
RMS On-State Current ($T_C=90^\circ\text{C}$)	$I_{T(RMS)}$	12	A
Peak One Cycle Surge Current, $t=16.7\text{ms}$	I_{TSM}	100	A
I^2t Value for Fusing, $t=10\text{ms}$	I^2t	78	A ² s
Average Gate Power Dissipation ($T_J=125^\circ\text{C}$)	$P_{G(AV)}$	1.0	W
Peak Gate Current, $t_p=20\mu\text{s}$ ($T_J=125^\circ\text{C}$)	I_{GM}	4.0	A
Critical Rate of Rise of On-State Current Repetitive, $f=120\text{Hz}$ ($T_J=125^\circ\text{C}$)	di/dt	50	A/ μs
Operating Junction Temperature	T_J	-40 to +125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to +150	$^\circ\text{C}$
Thermal Resistance (Note 1)	Θ_{JA}	65	$^\circ\text{C/W}$
Thermal Resistance	Θ_{JC}	1.4	$^\circ\text{C/W}$

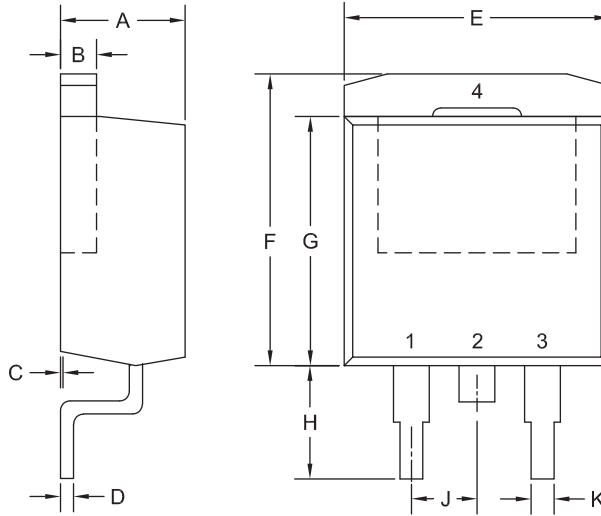
Note 1: Surface mounted on FR4 board using recommended footprint.

ELECTRICAL CHARACTERISTICS: ($T_C=25^\circ\text{C}$ unless otherwise noted)						
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS	
I_{DRM}, I_{RRM}	$V_D=600\text{V}$			5.0	μA	
I_{GT}	$V_D=12\text{V}, R_L=30\Omega, \text{QUAD I, II, III}$			50	mA	
I_H	$I_T=500\text{mA}$			50	mA	
V_{GT}	$V_D=12\text{V}, R_L=30\Omega, \text{QUAD I, II, III}$			1.3	V	
V_{TM}	$I_{TM}=17\text{A}, t_p=380\mu\text{s}$		1.39	1.55	V	
dv/dt	$V_D=\frac{2}{3}V_{DRM}, R_{GK}=\infty, T_J=125^\circ\text{C}$			500	V/ μs	

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D²PAK CASE - MECHANICAL OUTLINE



R3

LEAD CODE:

- 1) MT1
- 2) MT2
- 3) Gate
- 4) MT2

**MARKING:
FULL PART NUMBER**

SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.163	0.189	4.14	4.80
B	0.045	0.055	1.14	1.40
C	0.000	0.010	0.00	0.25
D	0.012	0.028	0.30	0.70
E	0.386	0.415	9.80	10.55
F	0.378	0.417	9.60	10.60
G	0.335	0.358	8.50	9.10
H	0.188	0.236	4.78	6.00
J	0.093	0.108	2.35	2.75
K	0.030	0.035	0.75	0.90

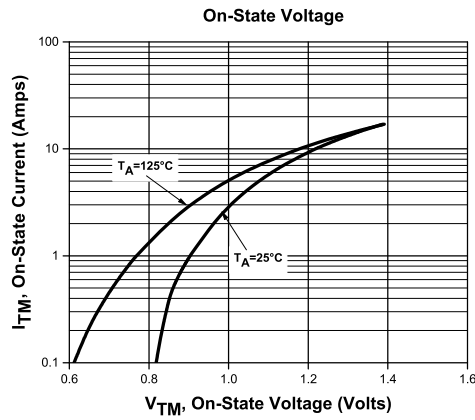
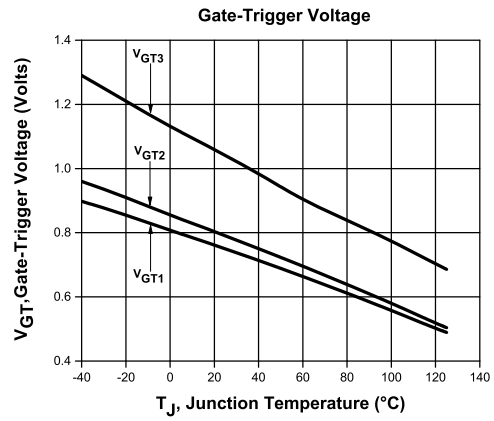
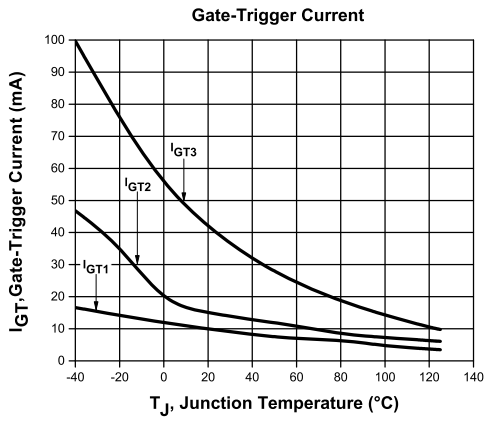
D2PAK (REV: R3)

R2 (11-January 2018)

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TYPICAL ELECTRICAL CHARACTERISTICS

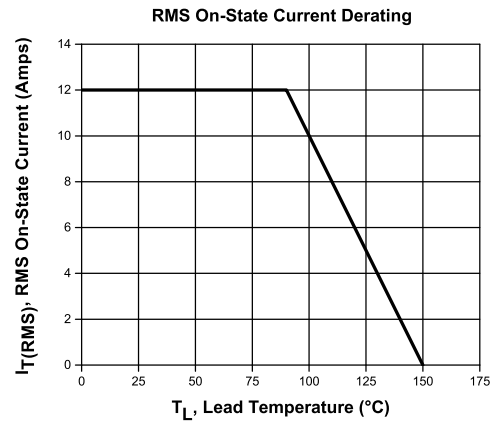
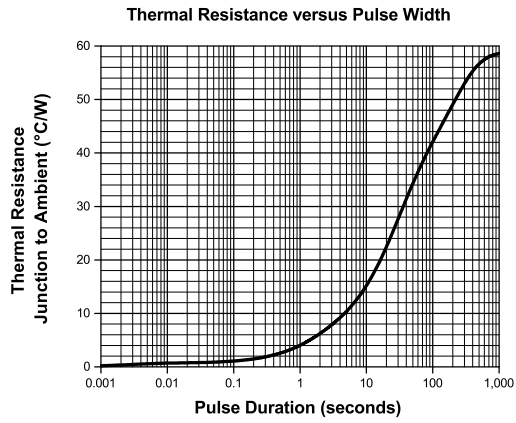


R2 (11-January 2018)

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TYPICAL ELECTRICAL CHARACTERISTICS



R2 (11-January 2018)

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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