SWITCHMODE™ Soft Ultrafast Recovery Reverse Polarity Power Rectifier

State-of-the-art geometry features epitaxial construction with glass passivation. Ideally suited for low voltage, high frequency switching power supplies, free wheeling diode and polarity protection diodes.

Features

- Soft Ultrafast Recovery
- Matched Dual Die Construction May Be Paralleled for High Current Output
- Short Heat Sink Tab Manufactured Not Sheared
- Epoxy Meets UL 94 V-0 @ 0.125 in.
- This is a Pb-Free Device

Mechanical Characteristics

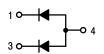
- Case: Epoxy, Molded
- Weight: 0.4 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds



ON Semiconductor®

http://onsemi.com

SOFT ULTRAFAST REVERSE POLARITY RECTIFIER 6.0 AMPERES, 200 VOLTS



MARKING DIAGRAM



DPAK CASE 369C



A = Assembly Location

Y = Year

WW = Work Week

G = Pb-Free Package

ORDERING INFORMATION

D	evice	Package	Shipping [†]
MSRD6	20CTRG	DPAK (Pb-Free)	75 Units/Rail
MSRD6	20CTT4RG	DPAK (Pb-Free)	2500/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MAXIMUM RATINGS

Rating			Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V _{RRM} V _{RWM} V _R	200	V
Average Rectified Forward Current (At Rated V _R , T _C = 162°C)	Per Leg Per Package	lo	3.0 6.0	А
Non-Repetitive Peak Surge Current Per Package (Surge Applied at Rated Load Conditions, Halfwave, Single Phase, 60 Hz)		I _{FSM}	45	А
Storage / Operating Case Temperature		T _{stg,} T _c	-65 to +175	°C
Operating Junction Temperature		TJ	-65 to +175	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

THERMAL CHARACTERISTICS

Rating		Symbol	Value	Unit
Thermal Resistance – Junction–to–Case (Note 1)	Per Leg	$R_{\theta JC}$	5.0	°C/W
Thermal Resistance – Junction–to–Ambient (Note 1)	Per Leg	$R_{\theta JA}$	60	°C/W
Thermal Resistance – Junction–to–Ambient (Note 2)	Per Leg	$R_{\theta JA}$	166	°C/W

ELECTRICAL CHARACTERISTICS

Rating			Va	lue	Unit
Maximum Instantaneous Forward Voltage (Note 3)	Per Leg	V _F	T _J = 25°C	T _J = 125°C	V
	$(I_F = 3.0 \text{ A})$ $(I_F = 6.0 \text{ A})$		1.15 1.30	0.95 1.15	
Maximum Instantaneous Reverse Current (Note 3)	Per Leg	I _R	T _J = 25°C	T _J = 125°C	μΑ
	$(V_R = 200 V)$		1.0	200	
Maximum Reverse Recovery Time (Note 4)	Per Leg	t _{rr}			ns
(V _R = 30 \	$I_{F} = 1.0 \text{ A}, \text{ di/dt} = 50 \text{ A/}\mu\text{s}$		7	'5	

- 1. Mounted with 700 mm² copper pad size (approximately 1 in²) 1 oz FR4 board.
- 2. Mounted with pad size approximately 46 mm² copper, 1 oz FR4 board.
- Pulse Test: Pulse Width ≤ 380 μs, Duty Cycle ≤ 2%.
 t_{rr} measured projecting from 25% of I_{RM} to ground.

TYPICAL CHARACTERISTICS

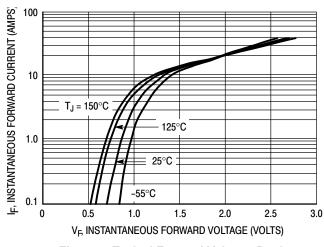


Figure 1. Typical Forward Voltage, Per Leg

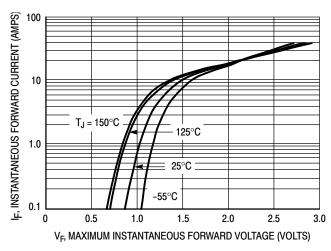
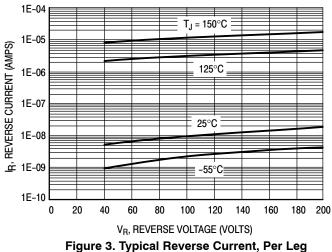


Figure 2. Maximum Forward Voltage, Per Leg



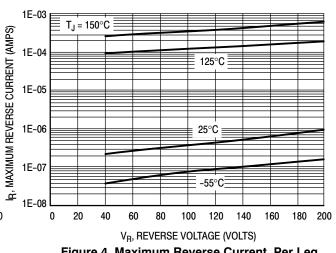


Figure 4. Maximum Reverse Current, Per Leg

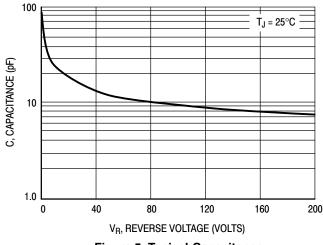


Figure 5. Typical Capacitance

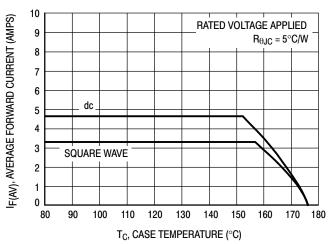


Figure 6. Typical Current Derating, Case (Per Leg)

TYPICAL CHARACTERISTICS

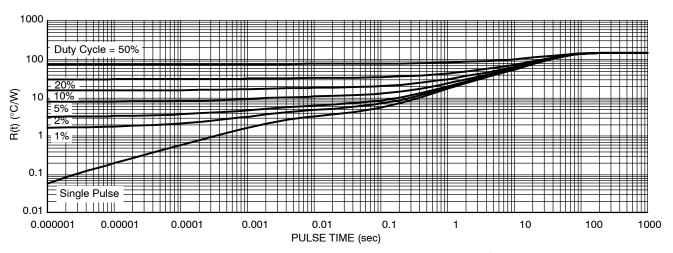


Figure 7. Thermal Response, Junction-to-Ambient (46 mm² pad)

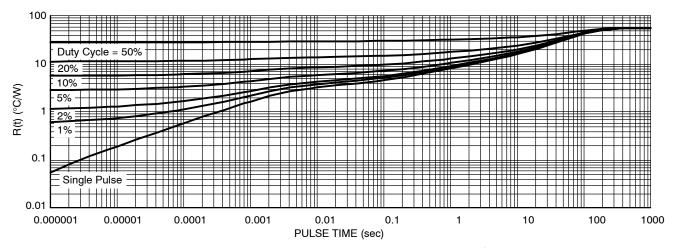
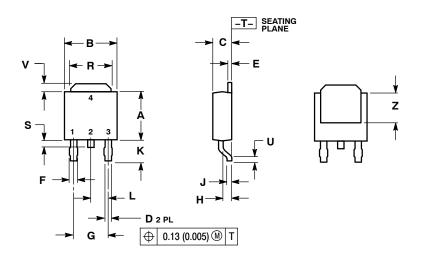


Figure 8. Thermal Response, Junction-to-Ambient (1 in² pad)

PACKAGE DIMENSIONS

DPAK CASE 369C-01 **ISSUE C**

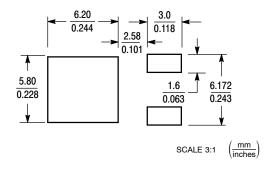


NOTES:

- 1. DIMENSIONING AND TOLERANCING
- PER ANSI Y14.5M, 1982. 2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
Α	0.235	0.245	5.97	6.22
В	0.250	0.265	6.35	6.73
С	0.086	0.094	2.19	2.38
D	0.027	0.035	0.69	0.88
E	0.018	0.023	0.46	0.58
F	0.037	0.045	0.94	1.14
G	0.180 BSC		4.58 BSC	
Н	0.034	0.040	0.87	1.01
J	0.018	0.023	0.46	0.58
K	0.102	0.114	2.60	2.89
L	0.090 BSC		2.29 BSC	
R	0.180	0.215	4.57	5.45
S	0.025	0.040	0.63	1.01
U	0.020		0.51	
٧	0.035	0.050	0.89	1.27
Z	0.155		3.93	

RECOMMENDED FOOTPRINT



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