

MURF1620CTG, SURF1620CT-SPG

Preferred Device

SWITCHMODE Power Rectifier

These state-of-the-art devices are designed for use in switching power supplies, inverters and as free wheeling diodes.

Features

- Ultrafast 35 Nanosecond Recovery Times
- 150°C Operating Junction Temperature
- Epoxy Meets UL 94 V-0 @ 0.125 in
- High Temperature Glass Passivated Junction
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating @ Both Case and Ambient Temperatures
- Electrically Isolated. No Isolation Hardware Required.
- ESD Rating:
 - ◆ Human Body Model = 3B (> 8 kV)
 - ◆ Machine Model = C (> 400 V)
- AEC-Q101 Qualified and PPAP Capable
- SURF Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- Pb-Free Package*

Mechanical Characteristics:

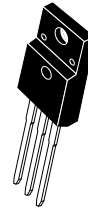
- Case: Epoxy, Molded
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds



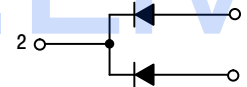
ON Semiconductor®

<http://onsemi.com>

**ULTRAFAST RECTIFIER
16 AMPERES, 200 VOLTS**



ISOLATED TO-220
CASE 221D
STYLE 3



MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
U1620 = Device Code
G = Pb-Free Package
AKA = Diode Polarity

ORDERING INFORMATION

Device	Package	Shipping†
MURF1620CTG	TO-220 (Pb-Free)	50 Units/Rail
SURF1620CT-SPG	TO-220 (Pb-Free)	50 Units/Rail

†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.

Preferred devices are recommended choices for future use and best overall value.

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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MAXIMUM RATINGS (Per Leg)

Rating	Symbol	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 Per Diode, (Rated V_R), $T_C = 150^\circ\text{C}$ Total Device	$I_{F(AV)}$	8 16	A
Peak Repetitive Forward Current (Rated V_R , Square Wave, 20 kHz), $T_C = 150^\circ\text{C}$	I_{FM}	16	A
Non-repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	100	A
Operating Junction and Storage Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
RMS Isolation Voltage ($t = 0.3$ second, R.H. $\leq 30\%$, $T_A = 25^\circ\text{C}$) (Note 1) Per Figure 3	V_{iso1}	4500	V

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.

- Proper strike and creepage distance must be provided.

THERMAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	4.2	$^\circ\text{C/W}$
Lead Temperature for Soldering Purposes: 1/8" from the Case for 5 seconds	T_L	260	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) ($I_F = 8.0$ A, $T_C = 150^\circ\text{C}$) ($I_F = 8.0$ A, $T_C = 25^\circ\text{C}$)	V_F	0.895 0.975	V
Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, $T_C = 150^\circ\text{C}$) (Rated DC Voltage, $T_C = 25^\circ\text{C}$)	i_R	250 5.0	μA
Maximum Reverse Recovery Time ($I_F = 1.0$ A, $di/dt = 50$ A/ μs) ($I_F = 0.5$ A, $i_R = 1.0$ A, $I_{REC} = 0.25$ A)	t_{rr}	35 25	ns

- Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

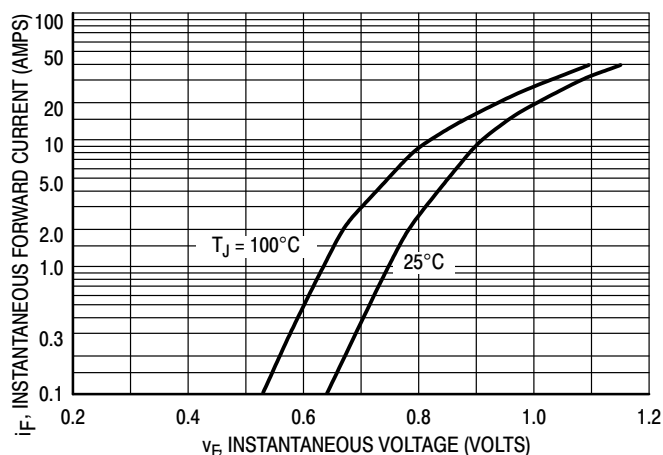


Figure 1. Typical Forward Voltage, Per Leg

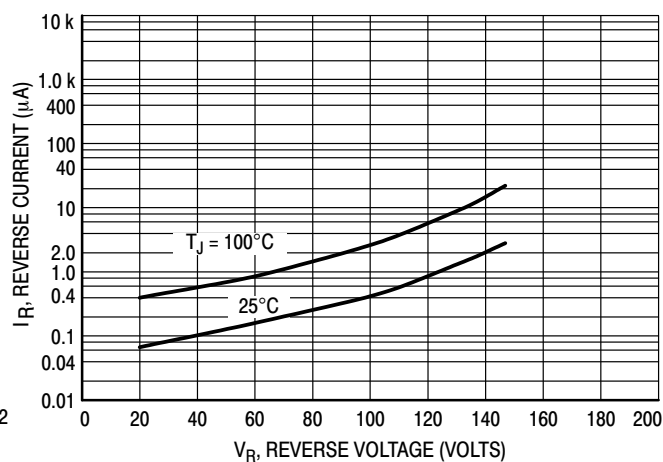


Figure 2. Typical Reverse Current, Per Leg*

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TEST CONDITION FOR ISOLATION TEST*

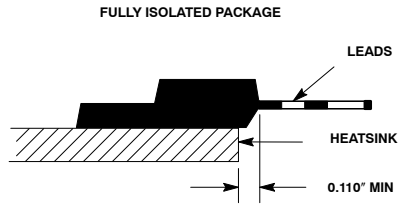
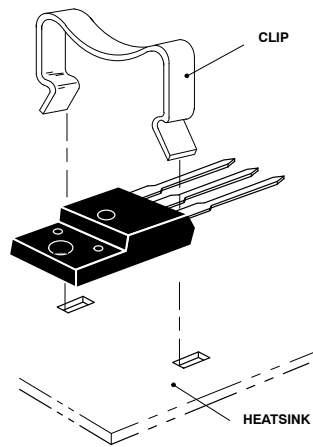


Figure 3. Mounting Position

* Measurement made between leads and heatsink with all leads shorted together.

MOUNTING INFORMATION



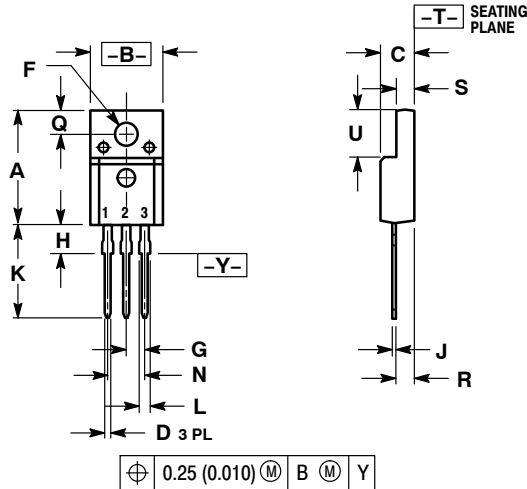
Clip-Mounted

Figure 4. Typical Mounting Technique

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PACKAGE DIMENSIONS

TO-220 FULLPAK
CASE 221D-03
ISSUE K



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH
3. 221D-01 THRU 221D-02 OBSOLETE, NEW STANDARD 221D-03.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.617	0.635	15.67	16.12
B	0.392	0.419	9.96	10.63
C	0.177	0.193	4.50	4.90
D	0.024	0.039	0.60	1.00
F	0.116	0.129	2.95	3.28
G	0.100 BSC		2.54 BSC	
H	0.118	0.135	3.00	3.43
J	0.018	0.025	0.45	0.63
K	0.503	0.541	12.78	13.73
L	0.048	0.058	1.23	1.47
N	0.200 BSC		5.08 BSC	
Q	0.122	0.138	3.10	3.50
R	0.099	0.117	2.51	2.96
S	0.092	0.113	2.34	2.87
U	0.239	0.271	6.06	6.88

STYLE 3:

1. ANODE
2. CATHODE
3. ANODE

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