ON Semiconductor

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www.onsemi.com

MUR3020WTG, MUR3040WTG, MUR3060WTG

Switch Mode Power Rectifiers

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

Features

- Ultrafast 35 and 60 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- Popular TO−247 Package
- High Voltage Capability to 600 V
- Low Forward Drop
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating Specified @ Both Case and Ambient Temperatures
- Epoxy Meets UL 94 V−0 @ 0.125 in
- High Temperature Glass Passivated Junction
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant*

Mechanical Characteristics:

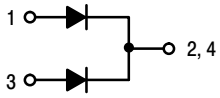
- Case: Epoxy, Molded
- Weight: 4.3 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 30 Units Per Plastic Tube

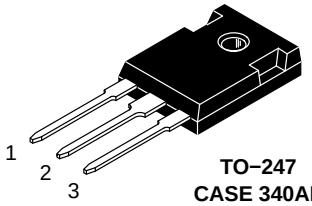
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ON Semiconductor®

http://onsemi.com

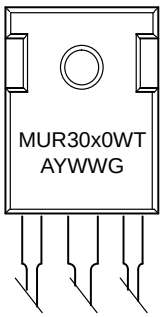
ULTRAFAST RECTIFIERS 30 AMPERES, 200−600 VOLTS





TO−247
CASE 340AL

MARKING DIAGRAM



MUR30x0WT = Device Code
x = 2, 4 or 6
A = Assembly Location
Y = Year
WW = Work Week
G = Pb−Free Package

ORDERING INFORMATION

Device	Package	Shipping
MUR3020WTG	TO−247 (Pb−Free)	30 Units/Rail
MUR3040WTG	TO−247 (Pb−Free)	30 Units/Rail
MUR3060WTG	TO−247 (Pb−Free)	30 Units/Rail

MAXIMUM RATINGS (Per Leg)

Rating	Symbol	MUR3020WT	MUR3040WT	MUR3060WT	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	400	600	V
Average Rectified Forward Current @ 145°C Total Device	$I_{F(AV)}$	15 30			A
Peak Repetitive Surge Current (Rated V_R, Square Wave, 20 kHz, T_C = 145°C)	I_{FM}	30			A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	I_{FSM}	200	150	150	A
Operating Junction and Storage Temperature	T_J, T_{stg}	− 65 to +175			°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (Per Leg)

Rating	Symbol	MUR3020WT	MUR3040WT	MUR3060WT	Unit
Maximum Thermal Resistance, − Junction−to−Case − Junction−to−Ambient	 $R_{\theta JC}$ $R_{\theta JA}$	 1.5 40			°C/W

ELECTRICAL CHARACTERISTICS (Per Leg)

Rating	Symbol	MUR3020WT	MUR3040WT	MUR3060WT	Unit
Maximum Instantaneous Forward Voltage (Note 1) (I_F = 15 Amp, T_C = 150°C) (I_F = 15 Amp, T_C = 25°C)	V_F	 0.85 1.05	 1.12 1.25	 1.4 1.7	V
Maximum Instantaneous Reverse Current (Note 1) (Rated DC Voltage, T_J = 150°C) (Rated DC Voltage, T_J = 25°C)	i_R	 500 10	 500 10	 1000 10	μA
Maximum Reverse Recovery Time (i_F = 1.0 A, di/dt = 50 Amps/μs)	t_{rr}	35	60	60	ns
Typical Peak Reverse Recovery Current (I_F = 1.0 A, di/dt = 50 A/μs)	I_{RM}	0.7			A

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

MUR3020WT

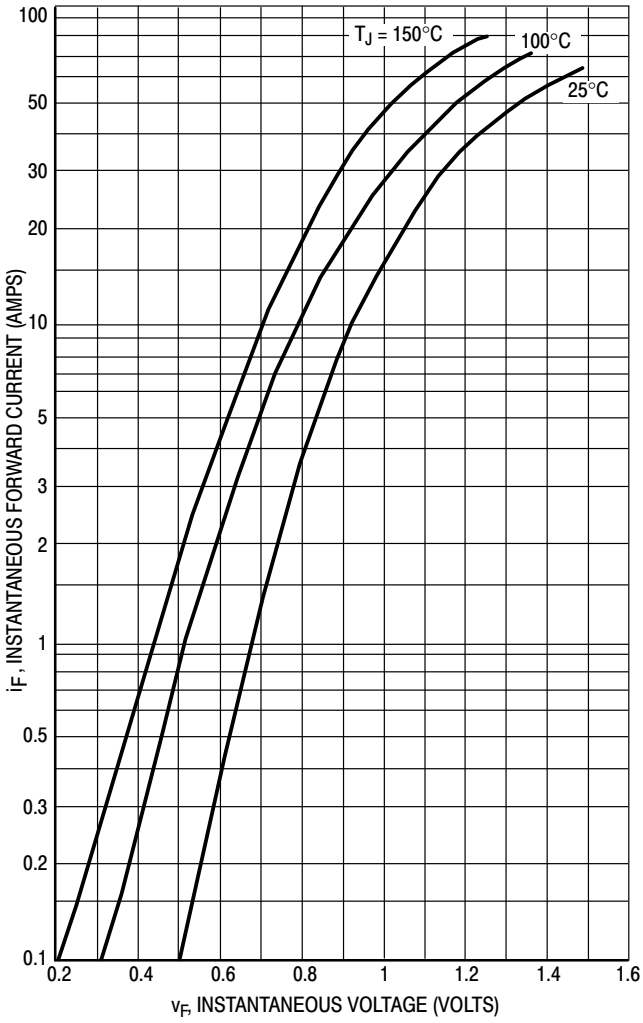
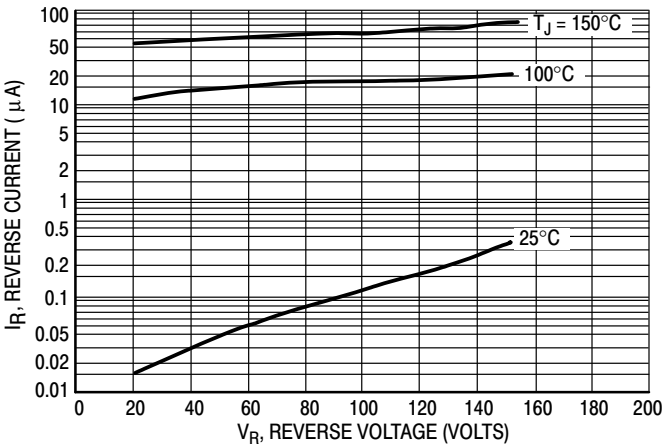


Figure 1. Typical Forward Voltage (Per Leg)



*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R.

Figure 2. Typical Reverse Current (Per Leg)*

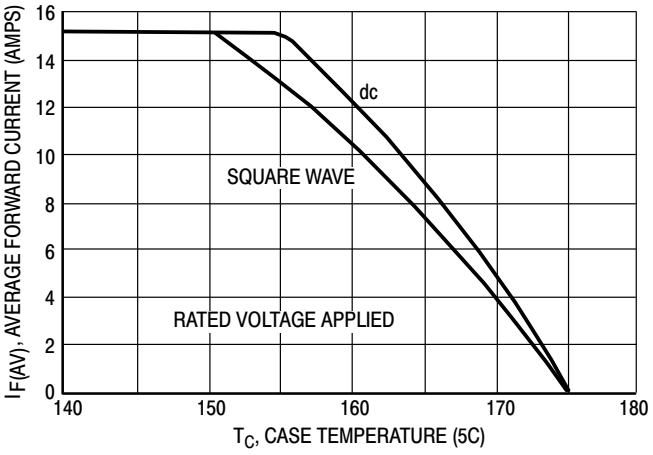


Figure 3. Current Derating, Case (Per Leg)

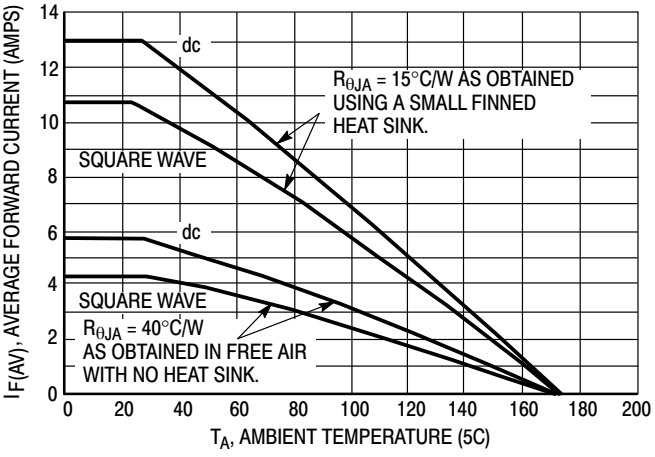


Figure 4. Current Derating, Ambient (Per Leg)

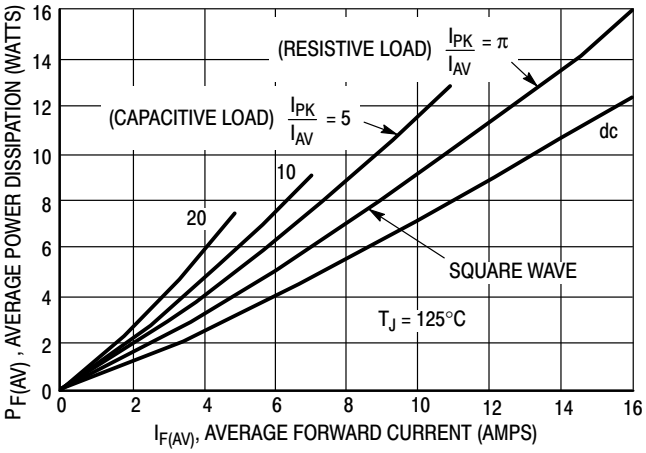


Figure 5. Power Dissipation (Per Leg)

MUR3040WTG

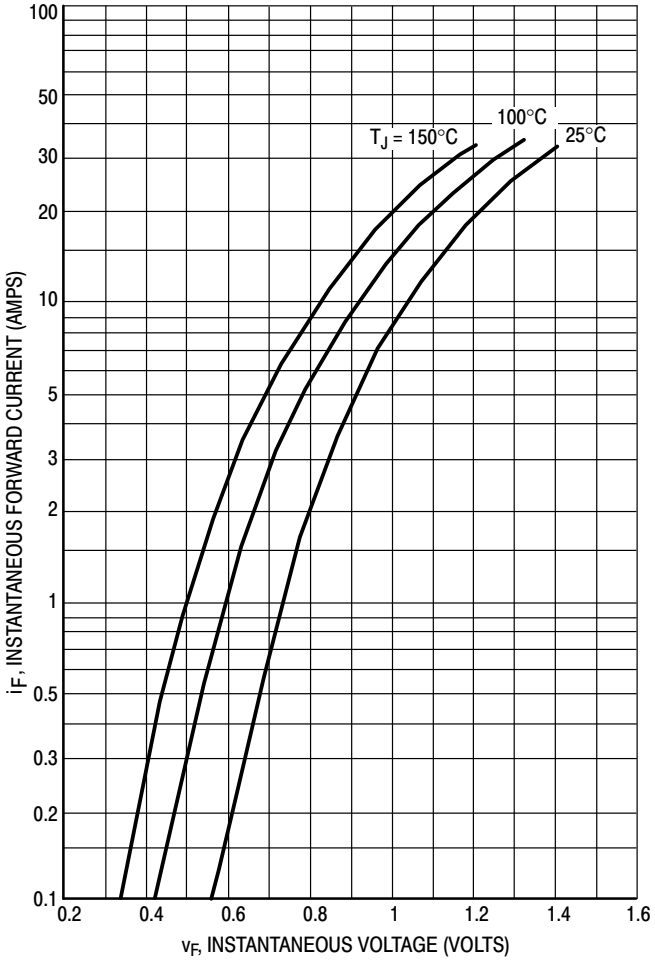
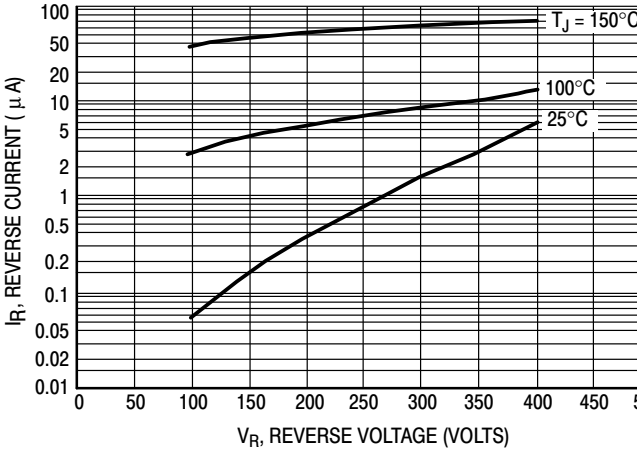


Figure 6. Typical Forward Voltage (Per Leg)



*The curves shown are typical for the highest voltage device in the voltage groupi
Typical reverse current for lower voltage selections can be estimated from these sa
curves if V_R is sufficiently below rated V_R.

Figure 7. Typical Reverse Current (Per Leg)*

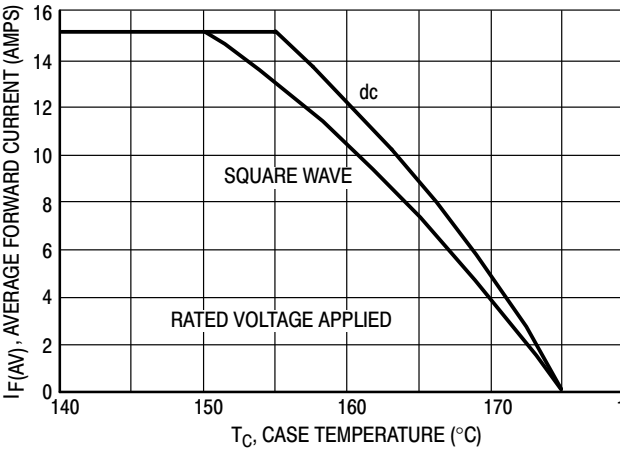


Figure 8. Current Derating, Case (Per Leg)

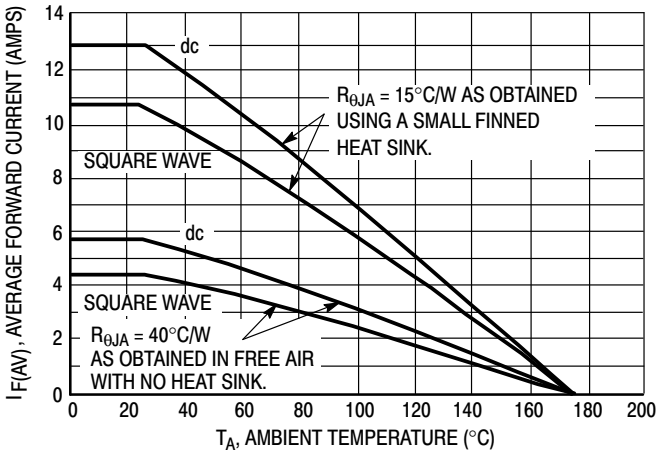


Figure 9. Current Derating, Ambient (Per Leg)

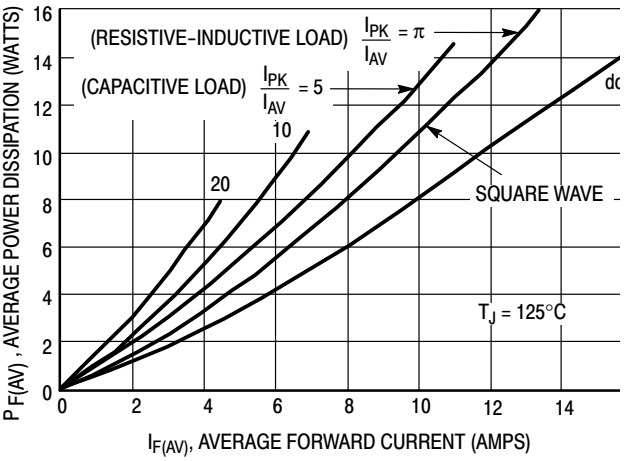


Figure 10. Power Dissipation (Per Leg)

MUR3060WT

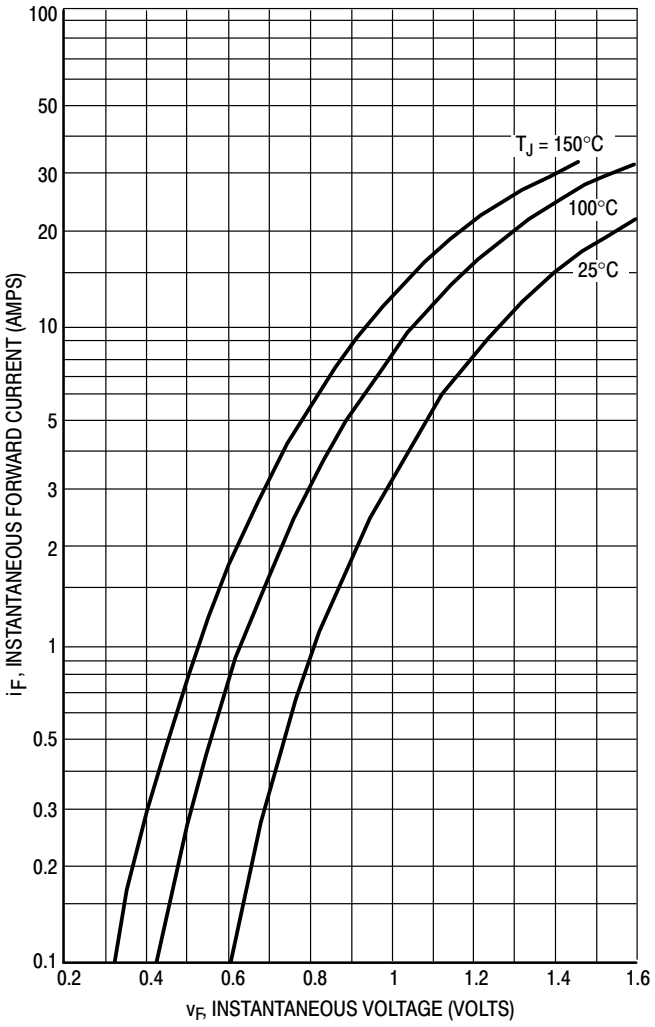
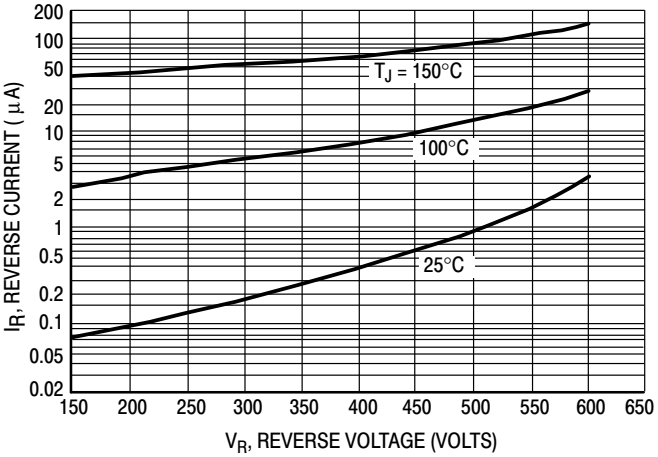


Figure 11. Typical Forward Voltage (Per Leg)



*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R.

Figure 12. Typical Reverse Current (Per Leg)*

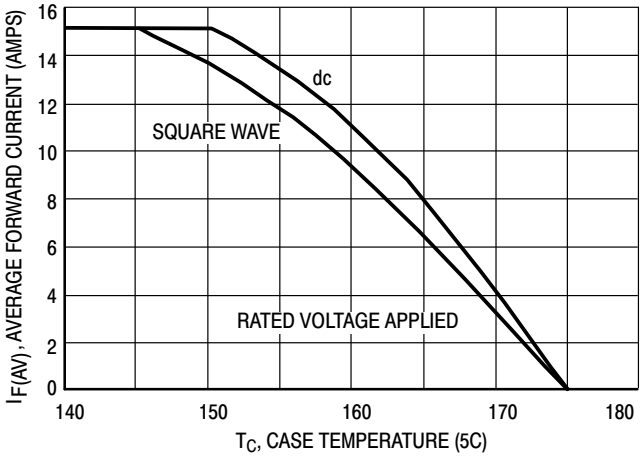


Figure 13. Current Derating, Case (Per Leg)

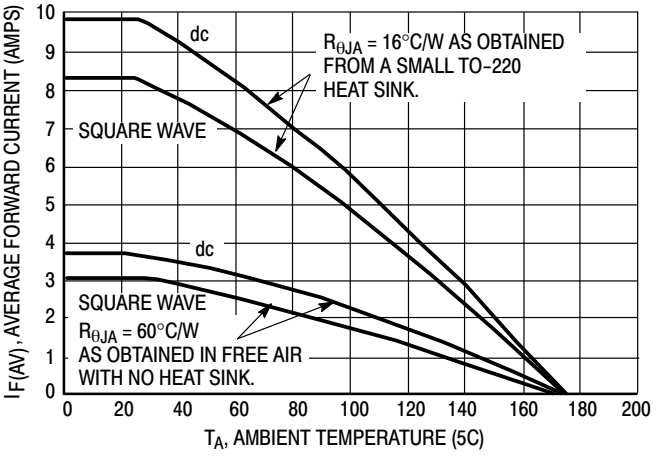


Figure 14. Current Derating, Ambient (Per Leg)

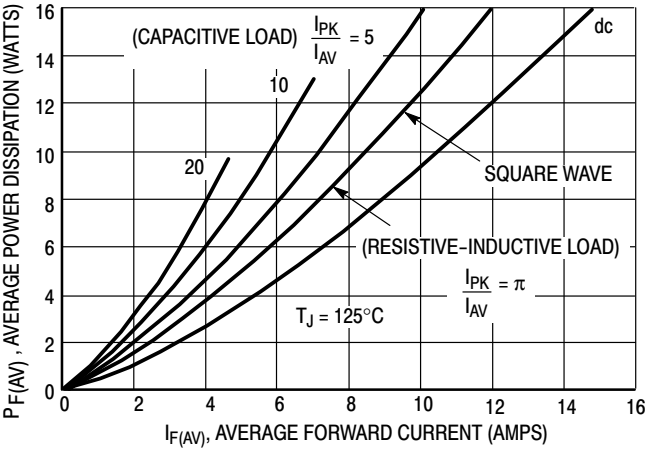


Figure 15. Power Dissipation (Per Leg)

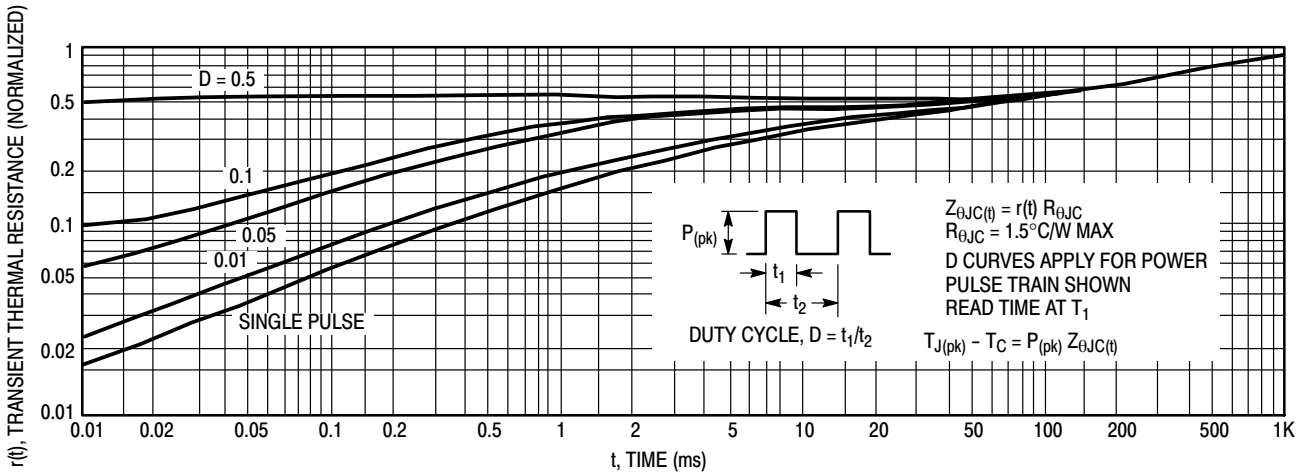


Figure 16. Thermal Response

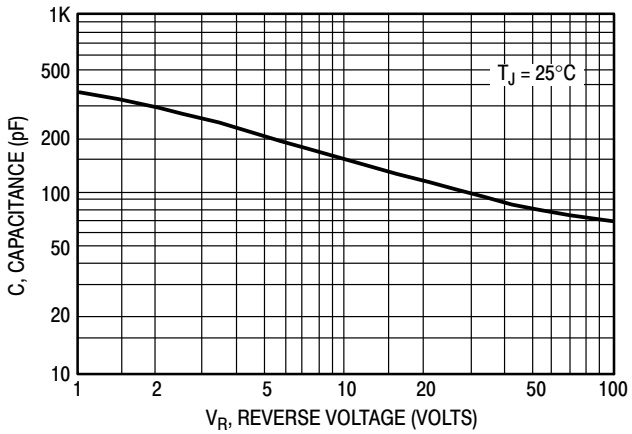


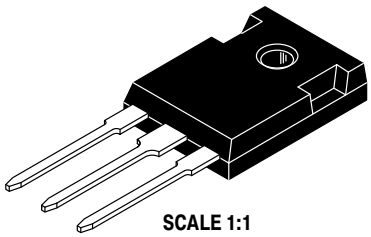
Figure 17. Typical Capacitance (Per Leg)

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

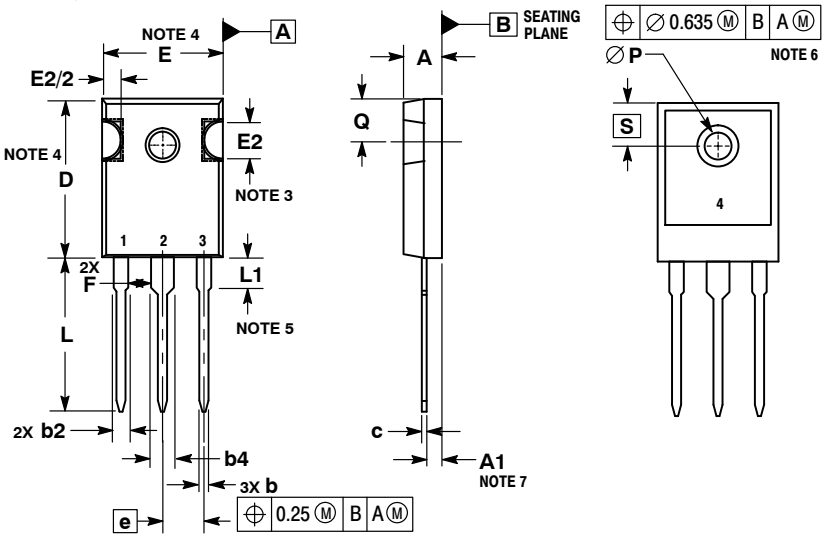
ON Semiconductor®

TO−247
CASE 340AL
ISSUE D

DATE 17 MAR 2017



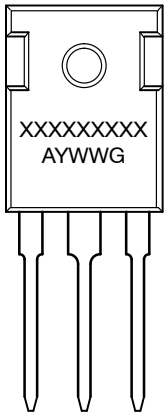
SCALE 1:1



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. SLOT REQUIRED, NOTCH MAY BE ROUNDED.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.13 PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREME OF THE PLASTIC BODY.
5. LEAD FINISH IS UNCONTROLLED IN THE REGION DEFINED BY L1.
6. ∅P SHALL HAVE A MAXIMUM DRAFT ANGLE OF 1.5° TO THE TOP OF THE PART WITH A MAXIMUM DIAMETER OF 3.91.
7. DIMENSION A1 TO BE MEASURED IN THE REGION DEFINED BY L1.

	MILLIMETERS	
DIM	MIN	MAX
A	4.70	5.30
A1	2.20	2.60
b	1.07	1.33
b2	1.65	2.35
b4	2.60	3.40
c	0.45	0.68
D	20.80	21.34
E	15.50	16.25
E2	4.32	5.49
e	5.45 BSC	
F	2.655	---
L	19.80	20.80
L1	3.81	4.32
P	3.55	3.65
Q	5.40	6.20
S	6.15 BSC	

GENERIC MARKING DIAGRAM*



XXXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
G = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking.
Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present.

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DESCRIPTION:	**TO−247**	**PAGE 1 OF 1**

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