MUR3020PT, MUR3040PT, MUR3060PT

SWITCHMODE™ Power Rectifiers

. . . designed for use in switching power supplies, inverters and as free wheeling diodes, these state–of–the–art devices have the following features:

- Ultrafast 35 and 60 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- High Voltage Capability to 600 Volts
- Low Forward Drop
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating Specified @ Both Case and Ambient Temperatures
- Epoxy Meets UL94, V_O @ 1/8″
- High Temperature Glass Passivated Junction

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
- Marking: U3020, U3040, U3060

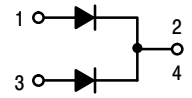
MAXIMUM RATINGS

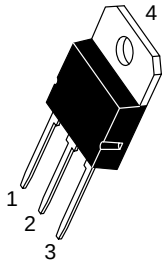
Please See the Table on the Following Page

ON Semiconductor™

http://onsemi.com

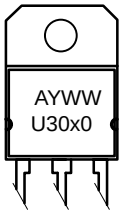
ULTRAFAST RECTIFIERS 30 AMPERES 200–600 VOLTS





TO–218AC
CASE 340D
STYLE 2

MARKING DIAGRAM



A	= Assembly Location
Y	= Year
WW	= Work Week
U30x0	= Device Code
x	= 2, 4 or 6

ORDERING INFORMATION

Device	Package	Shipping
MUR3020PT	SOT–93	30 Units/Rail
MUR3040PT	SOT–93	30 Units/Rail
MUR3060PT	SOT–93	30 Units/Rail

MAXIMUM RATINGS (Per Leg)

Rating	Symbol	MUR3020PT	MUR3040PT	MUR3060PT	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	400	600	Volts
Average Rectified Forward Current (Rated V_R) Per Leg Per Device	$I_{F(AV)}$	15 @ T_C = 150°C 30 @ T_C = 150°C		15 @ T_C = 30 145°C	Amps
Peak Rectified Forward Current, Per Leg (Rated V_R, Square Wave, 20 kHz, T_C = 150°C)	I_{FRM}	30 @ T_C = 150°C		30 @ T_C =145°C	Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz) Per Leg	I_{FSM}	200	150		Amps
Operating Junction and Storage Temperature	T_J, T_{stg}	– 65 to +175			°C

THERMAL CHARACTERISTICS (Per Diode Leg)

Maximum Thermal Resistance — Junction to Case — Junction to Ambient	$R_{\theta JC}$ $R_{\theta JA}$	1.5 40	°C/W

ELECTRICAL CHARACTERISTICS (Per Diode Leg)

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	1.2 1.5	Volts
Maximum Instantaneous Reverse Current (Note 1.) (Rated DC Voltage, T_J = 150°C) (Rated DC Voltage, T_J = 25°C)	i_R	500 10		1000 10	μA
Maximum Reverse Recovery Time (i_F = 1.0 Amp, di/dt = 50 Amps/μs)	t_{rr}	35	60		ns

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

MUR3020PT

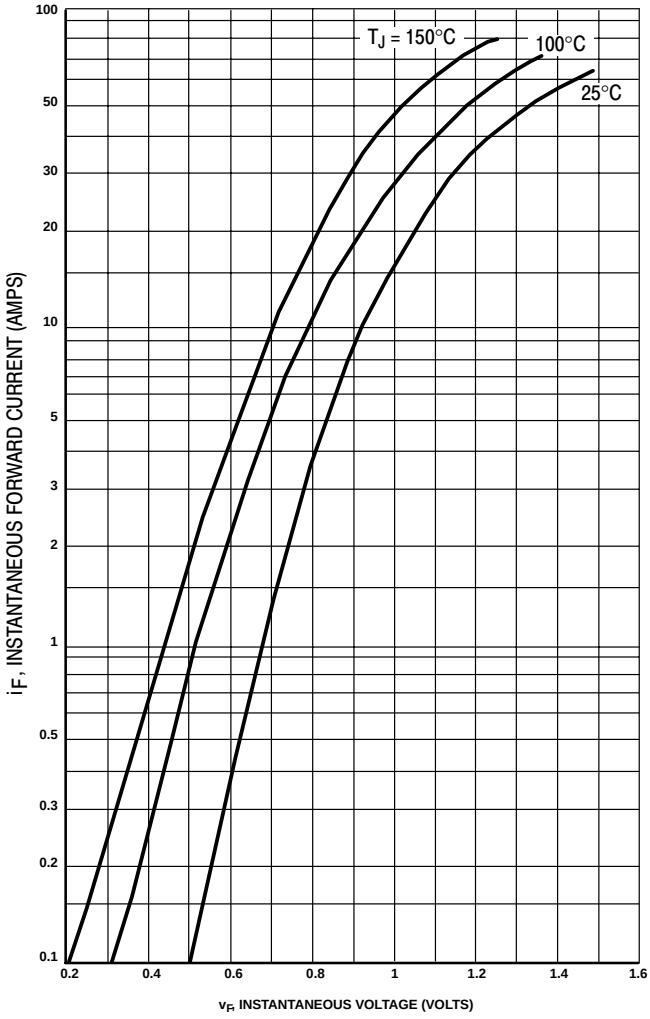


Figure 1. Typical Forward Voltage (Per Leg)

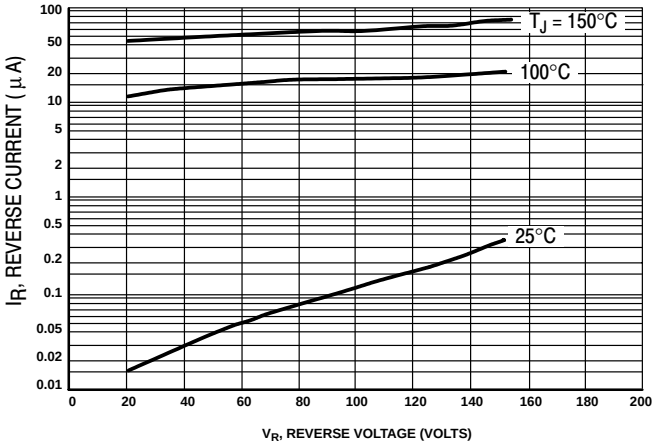


Figure 2. Typical Reverse Current (Per Leg)

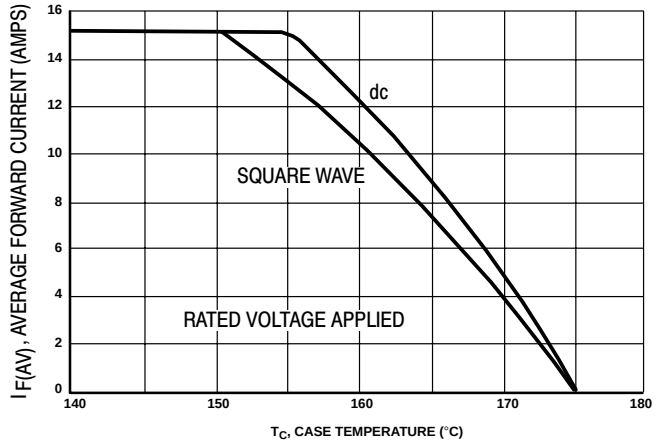


Figure 3. Current Derating, Case (Per Leg)

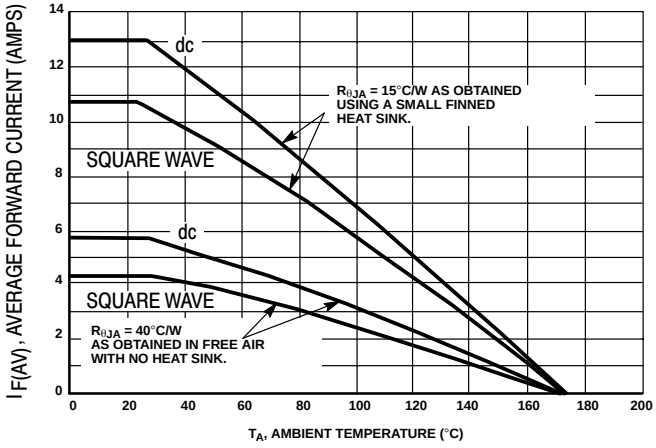


Figure 4. Current Derating, Ambient (Per Leg)

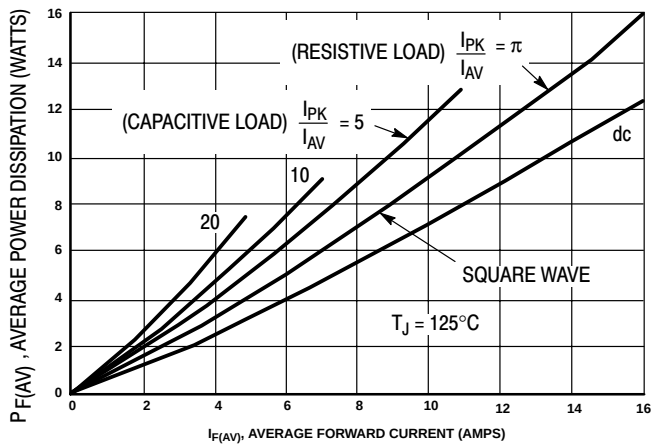


Figure 5. Power Dissipation (Per Leg)

MUR3040PT

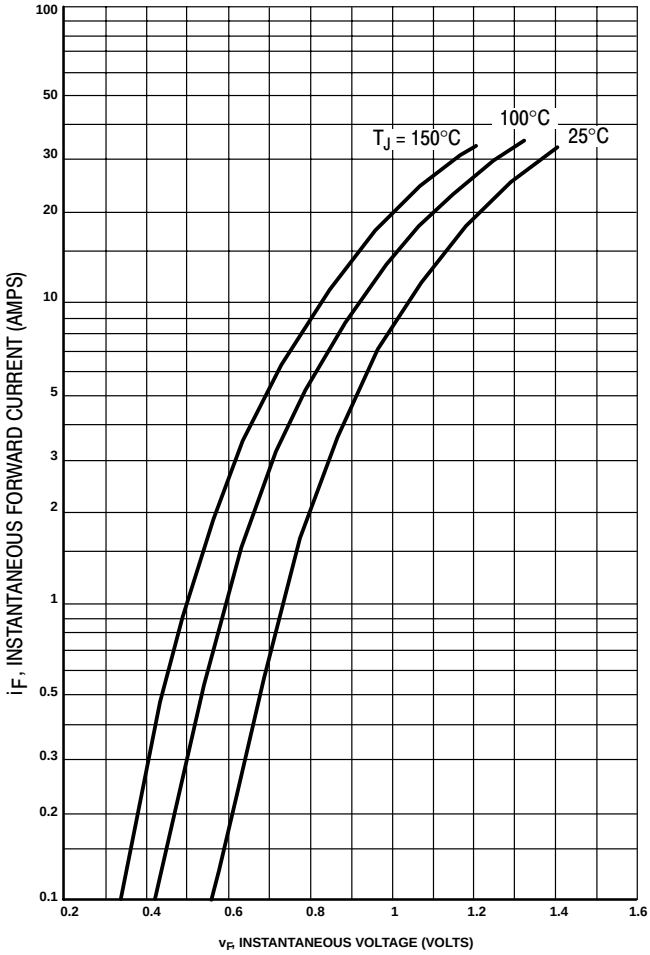


Figure 6. Typical Forward Voltage (Per Leg)

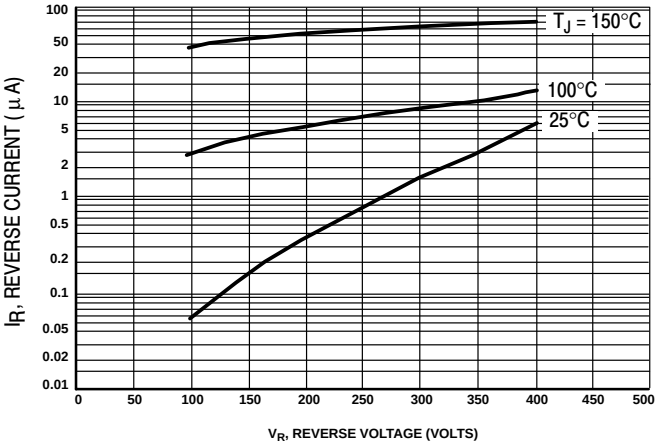


Figure 7. Typical Reverse Current (Per Leg)

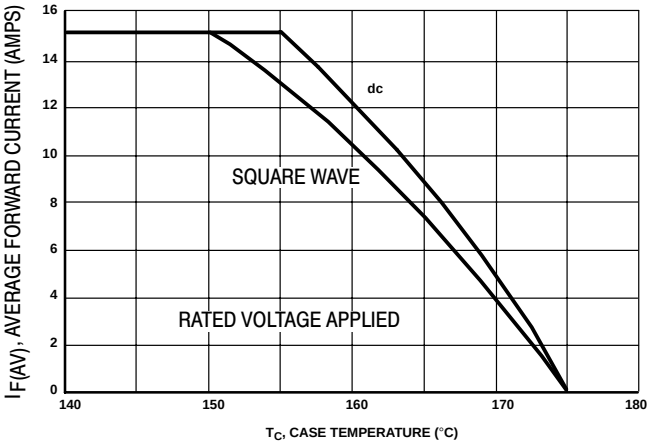


Figure 8. Current Derating, Case (Per Leg)

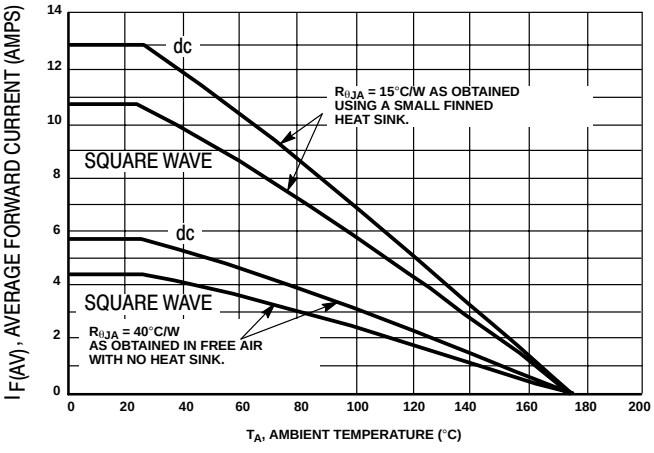


Figure 9. Current Derating, Ambient (Per Leg)

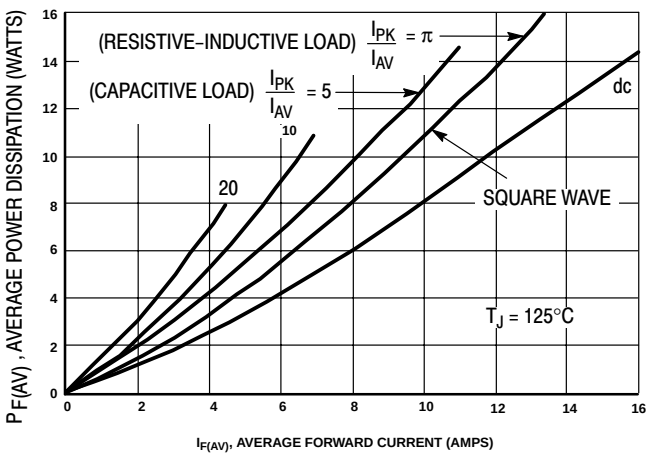


Figure 10. Power Dissipation (Per Leg)

MUR3060PT

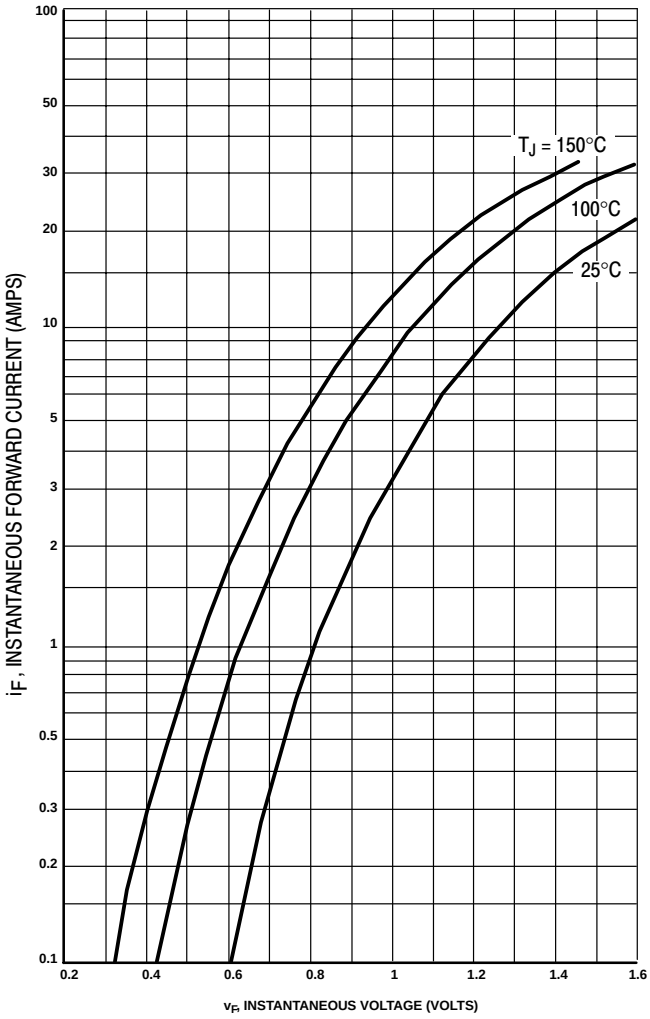


Figure 11. Typical Forward Voltage (Per Leg)

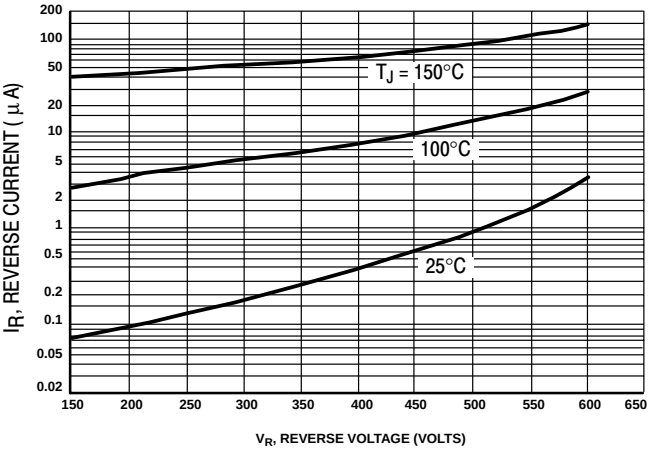


Figure 12. Typical Reverse Current (Per Leg)

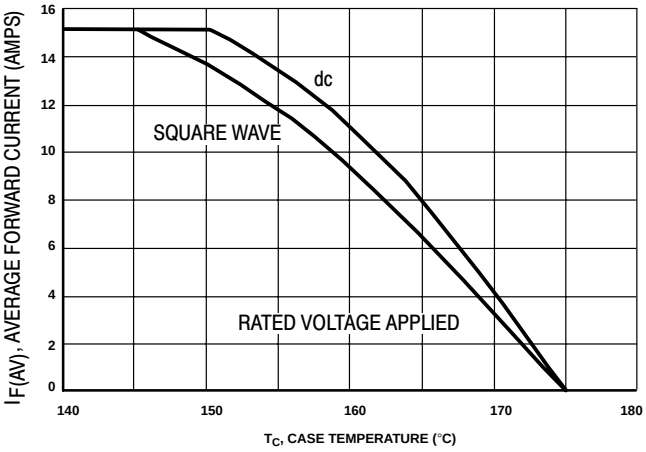


Figure 13. Current Derating, Case (Per Leg)

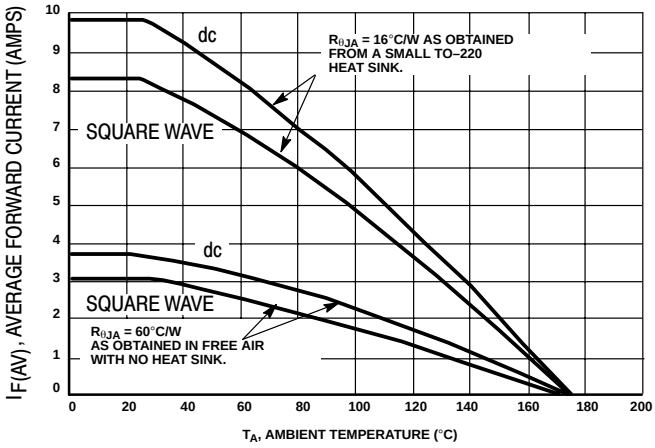


Figure 14. Current Derating, Ambient (Per Leg)

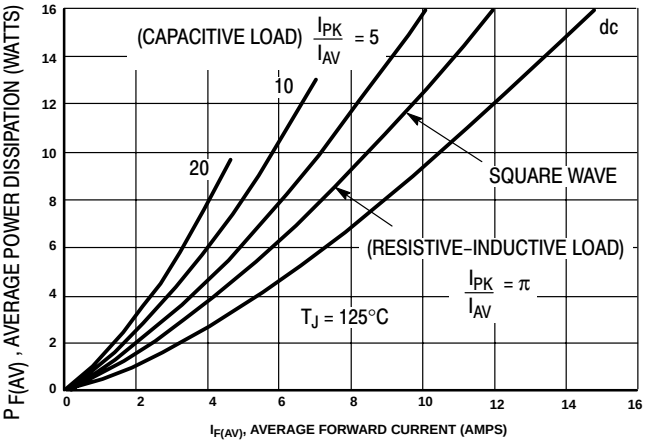


Figure 15. Power Dissipation (Per Leg)

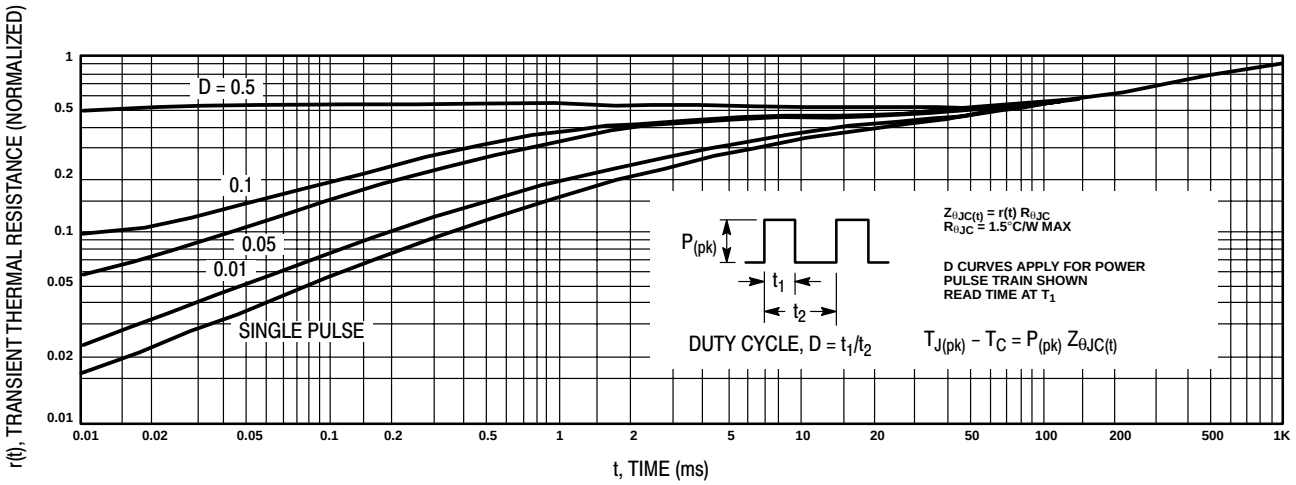


Figure 16. Thermal Response

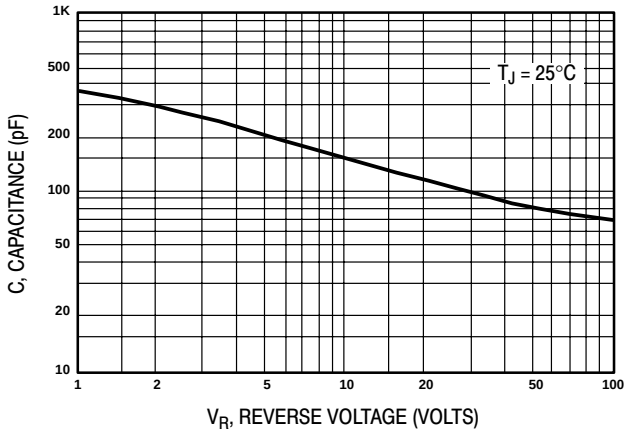
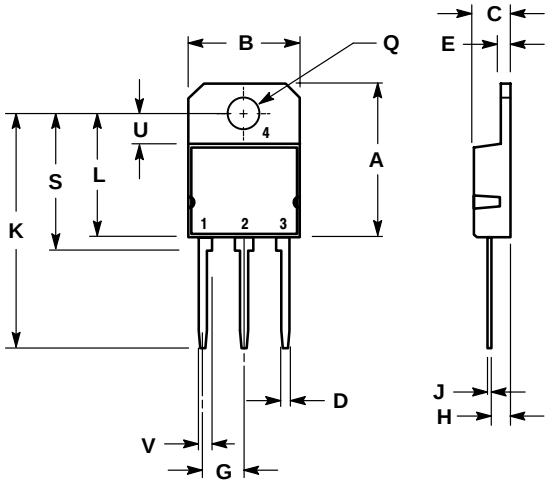


Figure 17. Typical Capacitance (Per Leg)

PACKAGE DIMENSIONS

TO–218 THREE LEAD
TO–218
CASE 340D–02
ISSUE E



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

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	---	20.35	---	0.801
B	14.70	15.20	0.579	0.598
C	4.70	4.90	0.185	0.193
D	1.10	1.30	0.043	0.051
E	1.17	1.37	0.046	0.054
G	5.40	5.55	0.213	0.219
H	2.00	3.00	0.079	0.118
J	0.50	0.78	0.020	0.031
K	31.00 REF		1.220 REF	
L	---	16.20	---	0.638
Q	4.00	4.10	0.158	0.161
S	17.80	18.20	0.701	0.717
U	4.00 REF		0.157 REF	
V	1.75 REF		0.069	

STYLE 2:
PIN 1. ANODE 1
2. CATHODE(S)
3. ANODE 2
4. CATHODE(S)

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PUBLICATION ORDERING INFORMATION

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Phone: 303–675–2175 or 800–344–3860 Toll Free USA/Canada
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JAPAN: ON Semiconductor, Japan Customer Focus Center
4–32–1 Nishi–Gotanda, Shinagawa–ku, Tokyo, Japan 141–0031
Phone: 81–3–5740–2700
Email: r14525@onsemi.com

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For additional information, please contact your local
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