Pb Free Plating Product

U60D20S/U60D40S/U60D60S

60.0 Amperes Dual Series Connection Ultra Fast Recovery Rectifiers

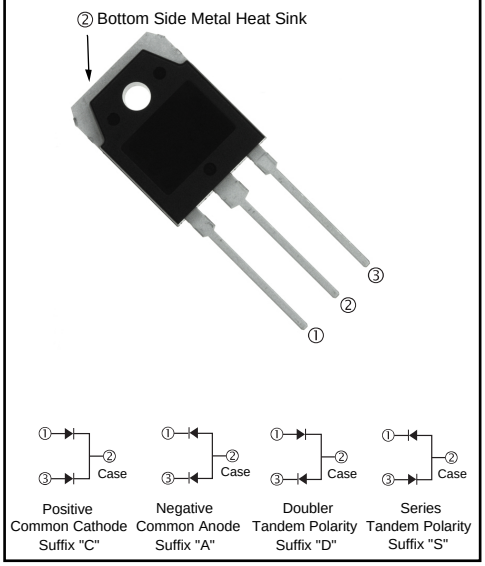
Features

- Dual rectifier construction, positive center-tap
- Plastic package has Underwriters Laboratory Flammability Classification 94V0
- Glass passivated chip junctions
- Superfast recovery time, high voltage
- Low forward voltage, high current capability
- Low thermal resistance
- Low power loss, high efficiency
- High temperature soldering guaranteed: 260°C, 0.16"(4.06mm)from case for 10 seconds

Mechanical Data

- Cases:Heatsink TO-3PN open metal package
- Terminals: Pure tin plated, lead free solderable per MIL-STD-750. Method 2026
- Polarity: As marked
- Mounting position: Any
- Mounting torque: 10in-lbs. Max.
- Weight: 6.5 gram approximately

TO-3PN



Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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

MAXIMUM RATINGS

Rating	Symbol	U60D20S	U60D40S	U60D60S	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 (Rated V_R) Per Leg Per Device	$I_{F(AV)}$	30 @ T_C = 150°C 60 @ T_C = 150°C			A
Peak Rectified Forward Current, Per Leg (Rated V_R, Square Wave, 20 kHz, T_C = 150°C)	I_{FRM}	60 @ T_C = 150°C		60 @ T_C =145°C	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz) Per Leg	I_{FSM}	600			A
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 = 30 Amp, T_C = 150°C) (I_F = 30 Amp, T_C = 25°C)	V_F	 0.95 1.05	 1.20 1.30	 1.5 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	 5000 60		 5000 60	μA
Maximum Reverse Recovery Time (I_F = 1.0 A, di/dt = 50 A/μs)	t_{rr}	35	50		ns

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Ultra Fast Recovery Rectifier Diodes(U60D20S/U60D40S/U60D60S)

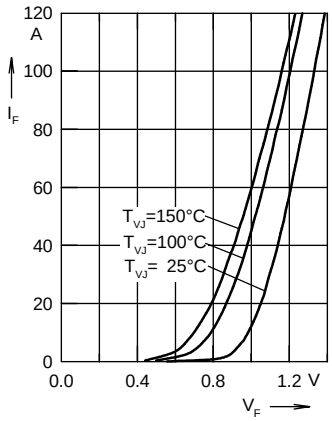

Fig. 1 Forward current I_F versus V_F

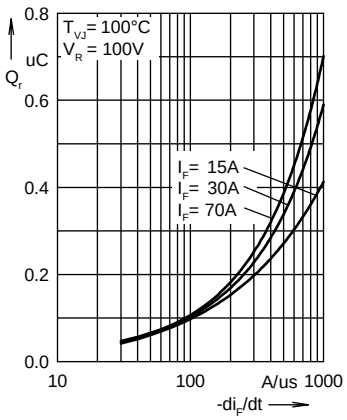

Fig. 2 Typ. reverse recovery charge Q_r versus $-di_F/dt$

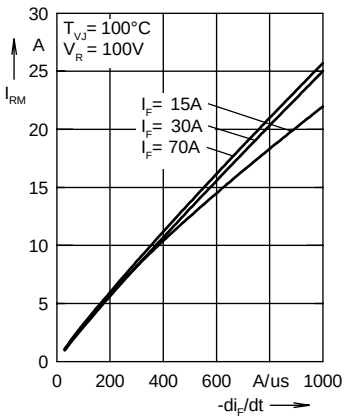

Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

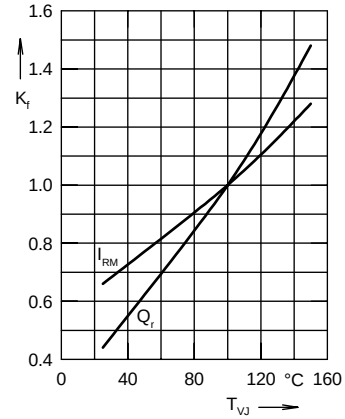

Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

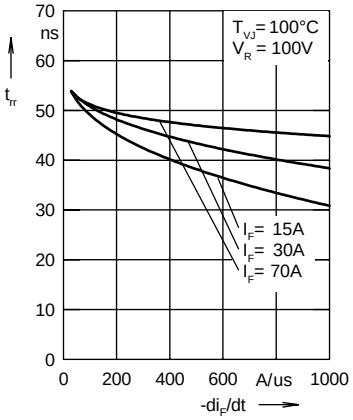

Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

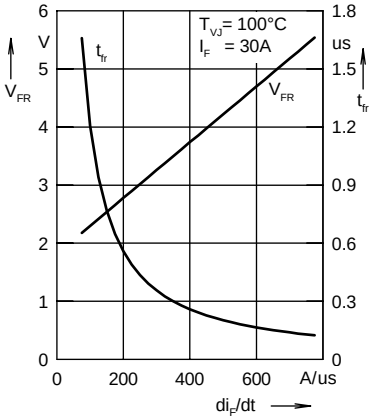

Fig. 6 Typ. peak forward voltage V_{FR} and t_{fr} versus di_F/dt

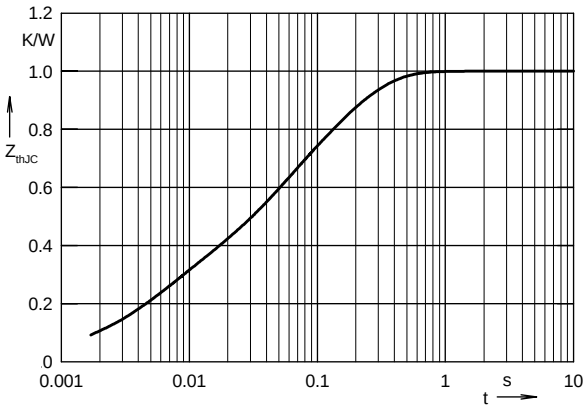

Fig. 7 Transient thermal impedance junction to case

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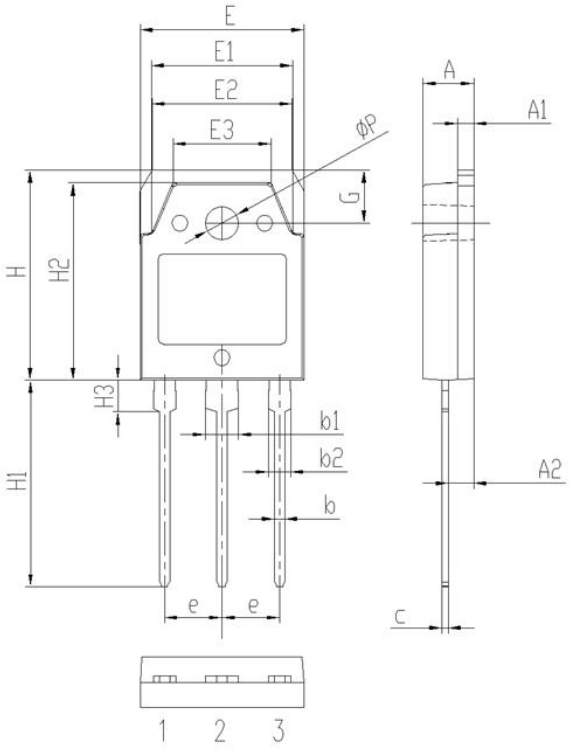
Package Information

TO-3PN Package Outline



Symbol	Dimensions(millimeters)	
	Min.	Max.
A	4.60	5.00
A1	1.80	2.20
A2	2.20	2.60
b	0.80	1.20
b1	2.90	3.30
b2	1.90	2.30
c	0.40	0.80
e	5.25	5.65
E	15.3	15.7
E1	13.2	13.6
E2	13.1	13.5
E3	9.10	9.50
H	19.7	20.1
H1	19.1	20.1
H2	18.3	18.7
H3	2.80	3.20
G	4.80	5.20
ΦP	3.00	3.40

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