



# QRT3006P

## PLANAR STRUCTURED SUPERFAST RECOVERY RECTIFIERS

**Voltage** 600 V **Current** 30 A

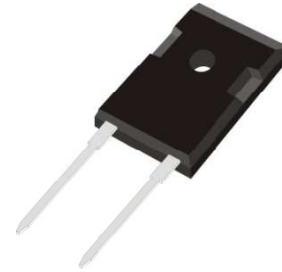
### Features

- Planar structure with EPI wafer
- Hyperfast recovery time, reduced  $Q_{rr}$  and soft recovery
- Low leakage current
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O Flame Retardant Epoxy Molding Compound
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case: TO-247AD 2L molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.183 ounces, 5.175 grams

TO-247AD 2L



### Maximum Ratings and Thermal Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNITS
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	600	V
Maximum RMS Voltage	$V_{RMS}$	420	V
Maximum DC Blocking Voltage	$V_{DC}$	600	V
Maximum Average Forward Rectified Current	$I_{F(AV)}$	30	A
Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed On Rated Load	$I_{FSM}$	320	A
Non-Repetitive Avalanche Energy ( $L=40\text{mH}$ )	$E_{AS}$	320	mJ
Typical Thermal Resistance	$R_{\theta JC}^{(1)}$	1.5	$^\circ\text{C/W}$
Operating Junction Temperature Range	$T_J$	-55~175	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55~175	$^\circ\text{C}$



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## Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Instantaneous Forward Voltage	$V_F$	$I_F = 1\text{ A}, T_J = 25^\circ\text{C}$	-	0.82	-	V
		$I_F = 8\text{ A}, T_J = 25^\circ\text{C}$	-	1.35	-	
		$I_F = 30\text{ A}, T_J = 25^\circ\text{C}$	-	1.92	2.4	
		$I_F = 1\text{ A}, T_J = 125^\circ\text{C}$	-	0.58	-	
		$I_F = 8\text{ A}, T_J = 125^\circ\text{C}$	-	0.98	-	
		$I_F = 30\text{ A}, T_J = 125^\circ\text{C}$	-	1.48	-	
Reverse Current	$I_R$	$V_R = 600\text{ V}, T_J = 25^\circ\text{C}$	-	-	5	uA
		$V_R = 600\text{ V}, T_J = 125^\circ\text{C}$	-	21	-	
Reverse Recovery Time	$T_{RR}$	$I_F = 0.5\text{ A}, I_R = 1\text{ A},$ $I_{RR} = 0.25\text{ A}, T_J = 25^\circ\text{C}$	-	-	65	ns
		$I_F = 1\text{ A}, V_R = 30\text{ V},$ $di/dt = 100\text{ A/us},$ $T_J = 25^\circ\text{C}$	-	-	40	
		$I_F = 30\text{ A}, V_R = 400\text{ V},$ $di/dt = 200\text{ A/us},$ $T_J = 25^\circ\text{C}$	-	61	-	
Peak Recovery Current	$I_{RRM}$	$I_F = 30\text{ A}, V_R = 400\text{ V},$ $di/dt = 200\text{ A/us},$ $T_J = 25^\circ\text{C}$	-	2.7	-	A
Reverse Recovery Charge	$Q_{RR}$	$I_F = 30\text{ A}, V_R = 400\text{ V},$ $di/dt = 200\text{ A/us},$ $T_J = 25^\circ\text{C}$	-	81	-	nC
Softness Factor = $t_b / t_a$	S	$I_F = 30\text{ A}, V_R = 400\text{ V},$ $di/dt = 200\text{ A/us},$ $T_J = 25^\circ\text{C}$	-	1.58	-	-
		$I_F = 30\text{ A}, V_R = 400\text{ V},$ $di/dt = 200\text{ A/us},$ $T_J = 125^\circ\text{C}$	-	0.36	-	-

**NOTES:**

1. Device mounted on a infinite heatsink , then measured the center of the marking side.



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## TYPICAL CHARACTERISTIC CURVES

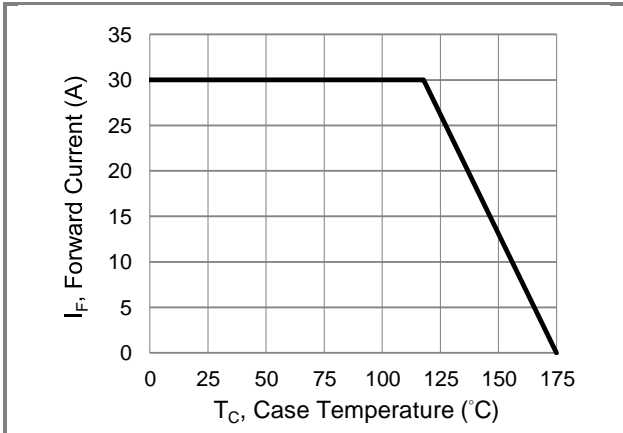


Fig.1 Forward Current Derating Curve

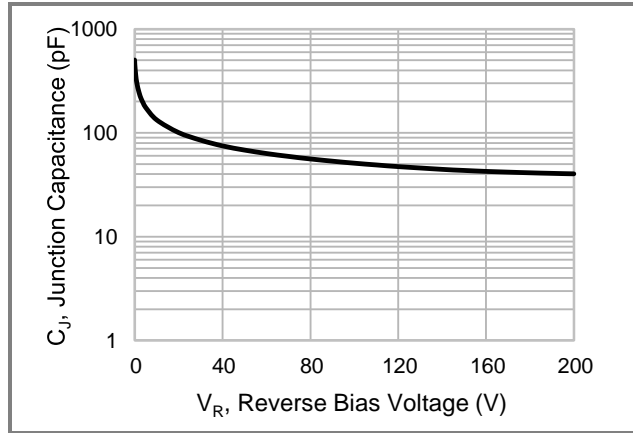


Fig.2 Typical Junction Capacitance

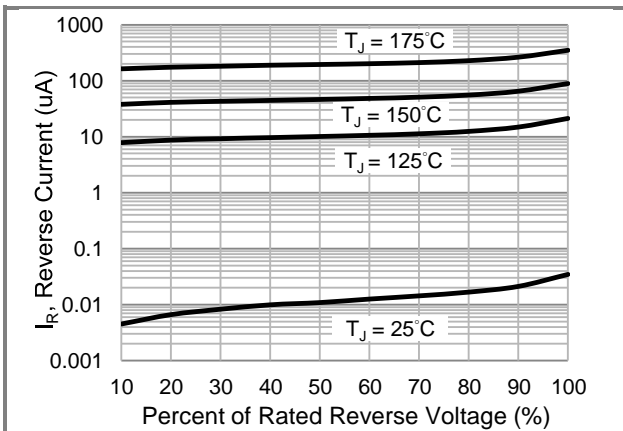


Fig.3 Typical Reverse Characteristics

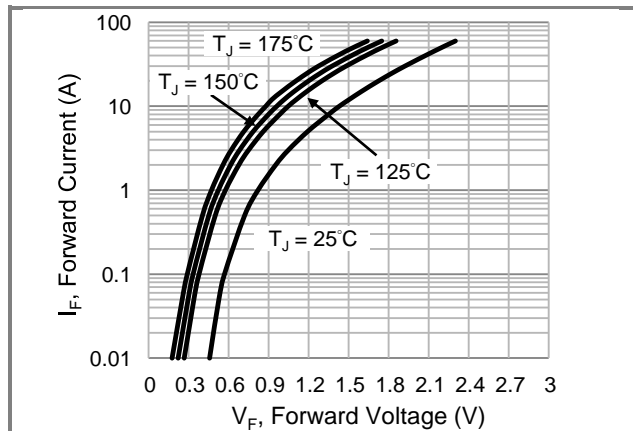


Fig.4 Typical Forward Characteristics

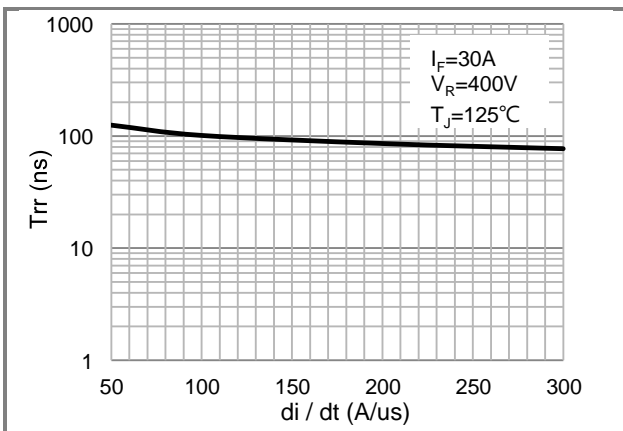


Fig.5 Typical Reverse Recovery Time Versus di/dt

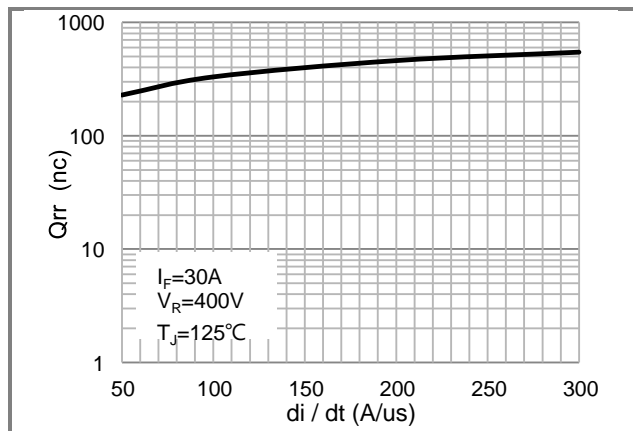


Fig.6 Typical Reverse Recovery Charges Versus di/dt

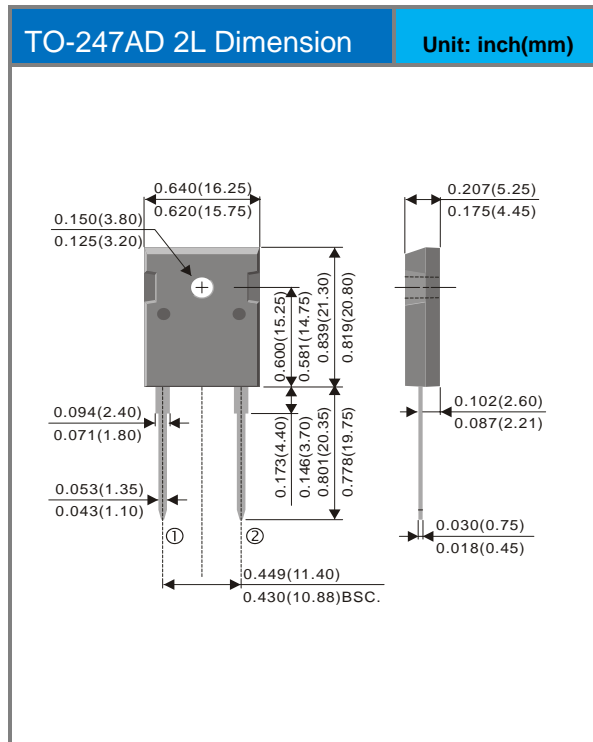


# QRT3006P

## Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
QRT3006P_T0_00001	TO-247AD 2L	30pcs / Tube	30A06	Halogen free

## Packaging Information & Mounting Pad Layout





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