



QRT10A06 \ QRT10A06F \ QRT10A06D

PLANAR STRUCTURED SUPERFAST RECOVERY RECTIFIERS

Voltage

600 V

Current

10 A

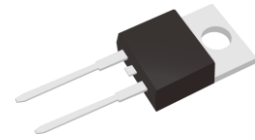
Features

- Planar structure with EPI wafer
- Hyperfast recovery time, reduced Qrr and soft recovery
- For PFC CCM operation
- 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

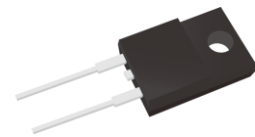
Mechanical Data

- Case: TO-220AC, ITO-220AC, TO-263 package
- Terminals: solder plated, solderable per MIL-STD-750, Method 2026
- TO-220AC Weight: 0.067 ounces, 1.89 grams
- ITO-220AC Weight: 0.055 ounces, 1.56 grams.
- TO-263 Weight: 0.049 ounces, 1.38 grams.
- Marking: Part number

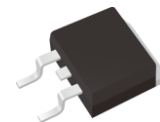
QRT10A06 TO-220AC



QRT10A06F ITO-220AC



QRT10A06D TO-263



Maximum Ratings And Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage	V _{RRM}	600	V
Maximum rms voltage	V _{RMS}	420	V
Maximum dc blocking voltage	V _R	600	V
Maximum average forward rectified current	I _{F(AV)}	10	A
Peak forward surge current : 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	75	A
Typical thermal resistance	TO-220AC (Note 1)	3	°C/W
	ITO-220AB (Note 1)	7	
	TO-263 (Note 2)	4	
Operating junction temperature range	T _J	-55 to +175	°C
Storage temperature range	T _{STG}	-55 to +175	°C

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

2. Device mounted on a 10cm*10cm*1mm copper pad area, then measured the center of the marking side.



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

PARAMETER	SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNITS	
Breakdown voltage	V_{BR}	$I_R=100\mu\text{A}$	$T_J=25^{\circ}\text{C}$	600	-	-	V	
Instantaneous forward voltage	V_F	$I_F=1\text{A}$	$T_J=25^{\circ}\text{C}$	-	1.17	-	V	
		$I_F=5\text{A}$		-	1.84	-		
		$I_F=10\text{A}$		-	2.25	2.4		
		$I_F=1\text{A}$	$T_J=125^{\circ}\text{C}$	-	0.83	-	V	
		$I_F=5\text{A}$		-	1.36	-		
		$I_F=10\text{A}$		-	1.74	-		
Reverse current	I_R	$V_R=600\text{V}$	$T_J=25^{\circ}\text{C}$	-	-	1	μA	
Reverse recovery time	T_{RR}	$I_F=0.5\text{A}$	$T_J=25^{\circ}\text{C}$	-	-	25	ns	
		$I_R=1\text{A}$		$T_J=25^{\circ}\text{C}$	-	-		20
		$I_{rr}=0.25\text{A}$			-	-		-
Reverse recovery time	T_{RR}	$I_F=1\text{A}$	$T_J=25^{\circ}\text{C}$	-	-	20	ns	
		$V_R=30\text{V}$ $di/dt=100\text{A}/\mu\text{s}$		-	-	20		
Reverse recovery time	T_{RR}	$I_F=10\text{A}$	$T_J=25^{\circ}\text{C}$	-	32	-	ns	
		$V_R=400\text{V}$ $di/dt=200\text{A}/\mu\text{s}$		-	32	-		
Peak recovery current	I_{RRM}	$I_F=10\text{A}$ $V_R=400\text{V}$ $di/dt=200\text{A}/\mu\text{s}$	$T_J=25^{\circ}\text{C}$	-	2	-	A	
Reverse recovery charge	Q_{RR}	$I_F=10\text{A}$ $V_R=400\text{V}$ $di/dt=200\text{A}/\mu\text{s}$	$T_J=25^{\circ}\text{C}$	-	32	-	nC	
Softness factor = t_b/t_a	S	$I_F=10\text{A}$ $V_R=400\text{V}$ $di/dt=200\text{A}/\mu\text{s}$	$T_J=25^{\circ}\text{C}$	-	3.77	-	-	
Softness factor = t_b/t_a	S	$I_F=10\text{A}$ $V_R=400\text{V}$ $di/dt=200\text{A}/\mu\text{s}$	$T_J=125^{\circ}\text{C}$	-	0.85	-	-	



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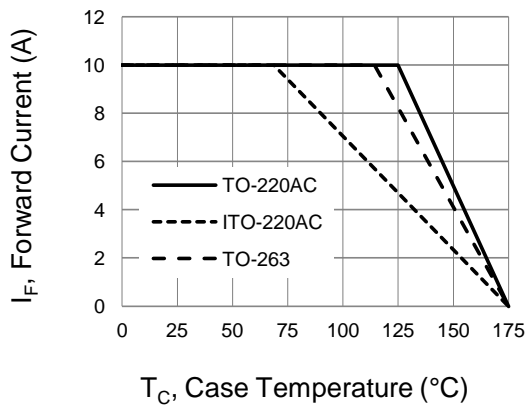


Fig.1 Forward Current Derating Curve

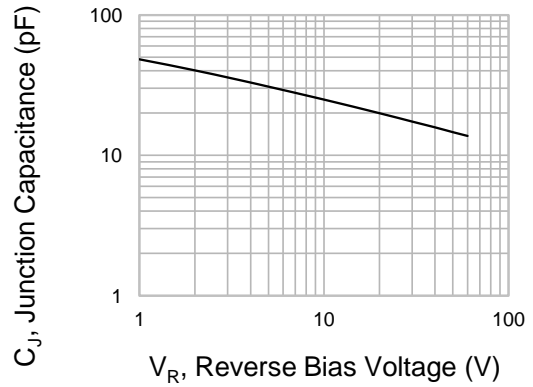


Fig.2 Typical Junction Capacitance

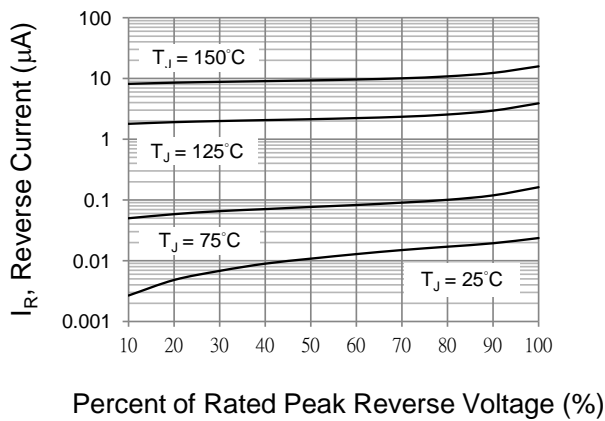


Fig.3 Typical Reverse Characteristics

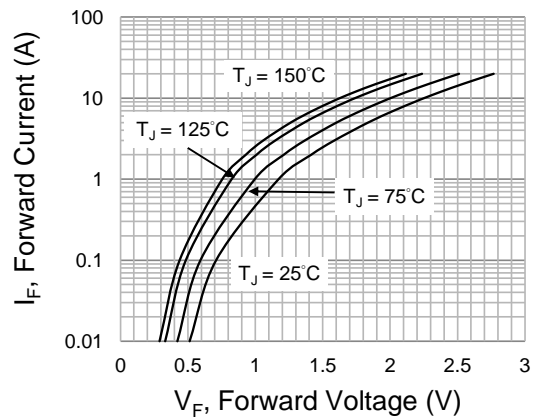


Fig.4 Typical Forward Characteristics

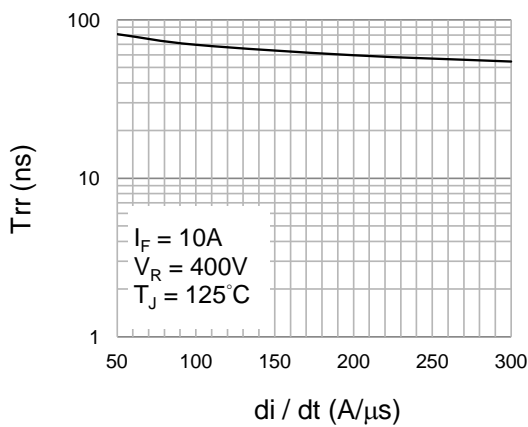


Fig.5 Typical Reverse recovery time versus di/dt

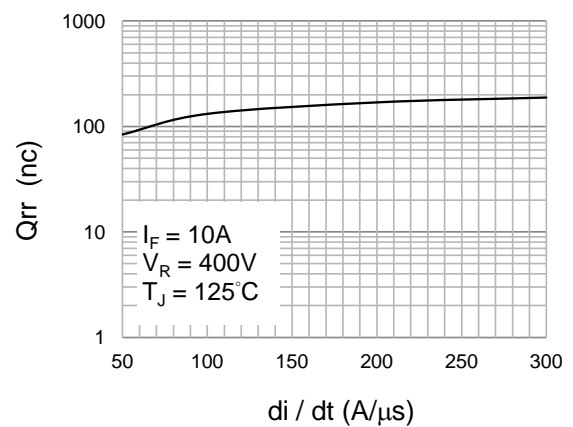
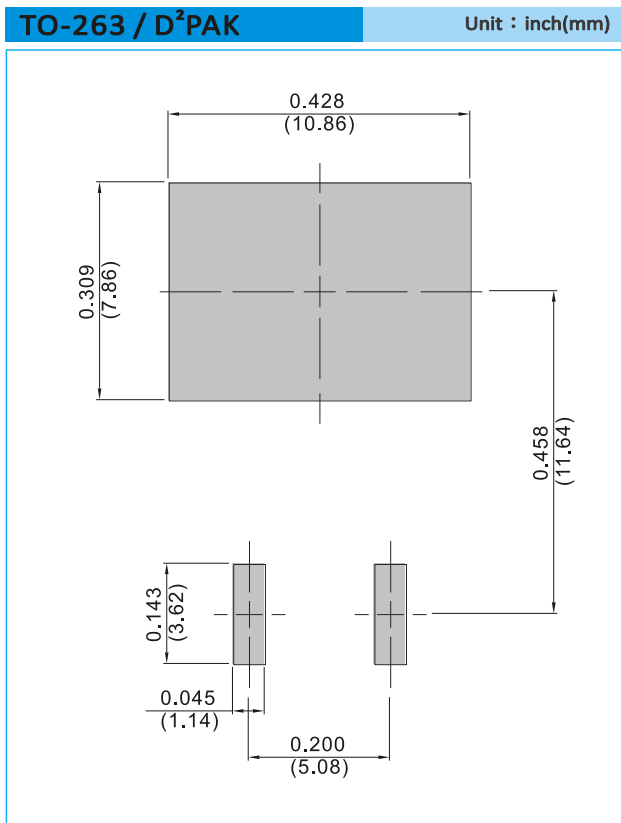


Fig.6 Typical Reverse recovery charges versus di/dt



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MOUNTING PAD LAYOUT



ORDER INFORMATION

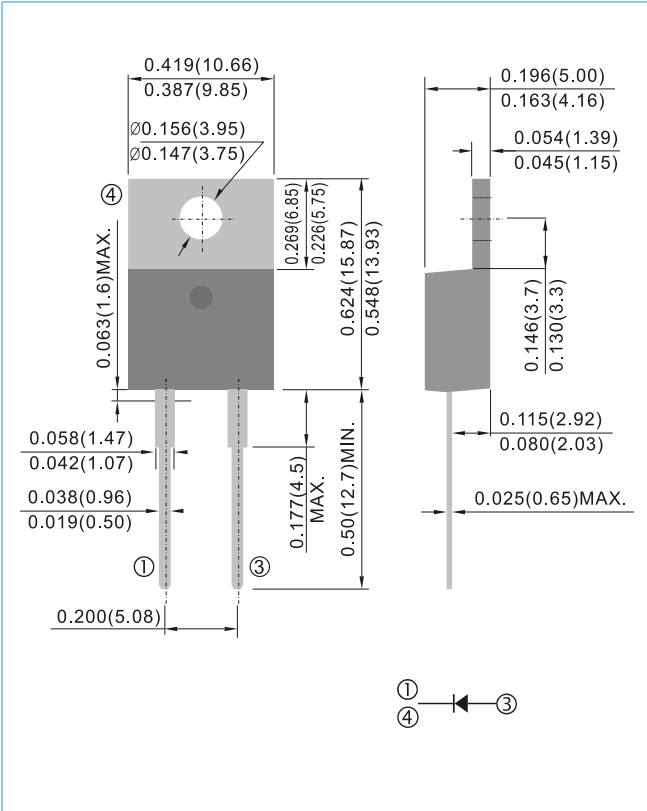
- Packing information
T/R – 0.8K per 13" plastic Reel



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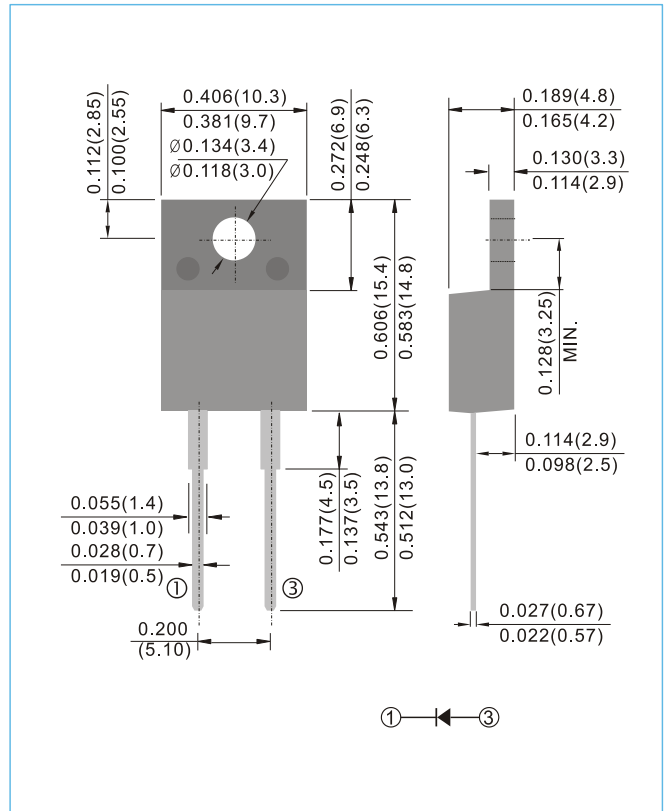
TO-220AC

Unit : inch(mm)



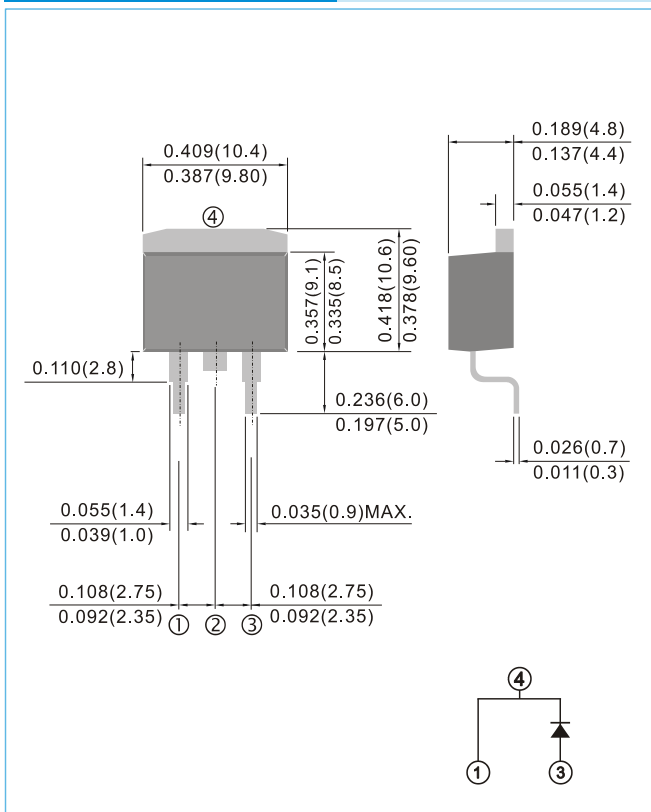
ITO-220AC

Unit : inch(mm)



TO-263 / D²PAK

Unit : inch(mm)





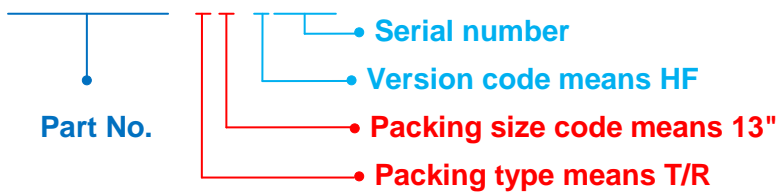
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Part No_packing code_Version

QRT10A06_T0_00001
 QRT10A06_T0_10001
 QRT10A06F_T0_00001
 QRT10A06F_T0_10001
 QRT10A06D_R2_00001
 QRT10A06D_R2_10001

For example :

RB500V-40_R2_00001



Packing Code XX				Version Code XXXXX		
Packing type	1 st Code	Packing size code	2 nd Code	HF or RoHS	1 st Code	2 nd ~5 th Code
Tape and Ammunition Box (T/B)	A	N/A	0	HF	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			



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