



# QRT812 \ QRT812F \ QRT812D

## PLANAR STRUCTURED SUPERFAST RECOVERY RECTIFIERS

**Voltage**

**1200 V**

**Current**

**8 A**

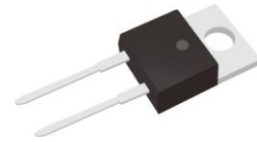
### Features

- 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

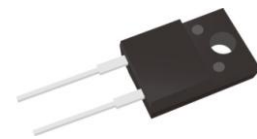
### Mechanical Data

- 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

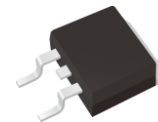
QRT812 TO-220AC



QRT812F ITO-220AC



QRT812D TO-263



### Maximum Ratings And Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER		SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage		V <sub>RRM</sub>	1200	V
Maximum rms voltage		V <sub>RMS</sub>	840	V
Maximum dc blocking voltage		V <sub>R</sub>	1200	V
Maximum average forward rectified current		I <sub>F(AV)</sub>	8	A
Peak forward surge current : 8.3ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	90	A
Typical thermal resistance	TO-220AC (Note 1)	R <sub>θJC</sub>	2	°C/W
	ITO-220AC (Note 1)		5.5	
	TO-263 (Note 1)		2	
Operating junction temperature range		T <sub>J</sub>	-55 to +175	°C
Storage temperature range		T <sub>STG</sub>	-55 to +175	°C

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



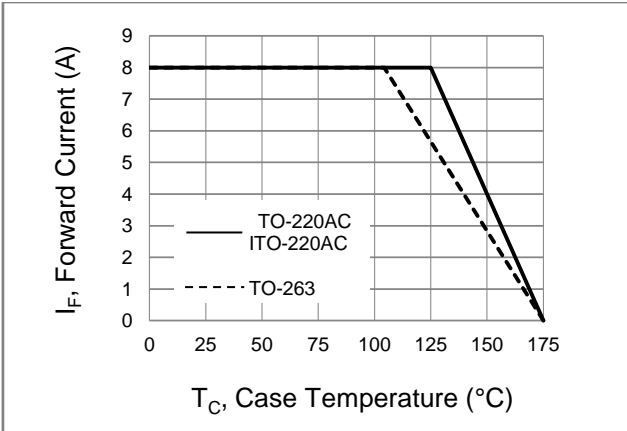
## QRT812 \ QRT812F \ QRT812D

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

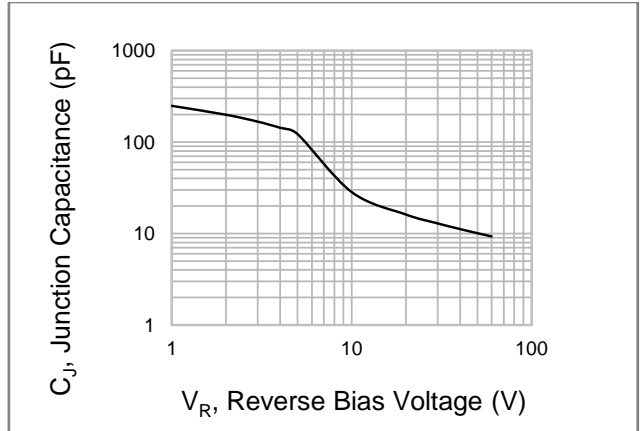
PARAMETER	SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNITS
Breakdown voltage	$V_{BR}$	$I_R=100\mu\text{A}$	$T_J=25^{\circ}\text{C}$	1200	-	-	V
Instantaneous forward voltage	$V_F$	$I_F=1\text{A}$	$T_J=25^{\circ}\text{C}$	-	1.46	-	V
		$I_F=5\text{A}$		-	2.06	-	
		$I_F=8\text{A}$		-	2.29	3.2	
		$I_F=1\text{A}$	$T_J=125^{\circ}\text{C}$	-	0.99	-	V
		$I_F=5\text{A}$		-	1.58	-	
		$I_F=8\text{A}$		-	1.82	-	
Reverse current	$I_R$	$V_R=1200\text{V}$	$T_J=25^{\circ}\text{C}$	-	-	3	$\mu\text{A}$
			$T_J=125^{\circ}\text{C}$	-	5	-	$\mu\text{A}$
Reverse recovery time	$T_{RR}$	$I_F=1\text{A}$ $V_R=30\text{V}$ $di/dt=100\text{A}/\mu\text{s}$	$T_J=25^{\circ}\text{C}$	-	-	40	ns
		$I_F=8\text{A}$ $V_R=400\text{V}$ $di/dt=200\text{A}/\mu\text{s}$	$T_J=25^{\circ}\text{C}$	-	45	-	ns
Peak recovery current	$I_{RRM}$	$I_F=8\text{A}$ $V_R=400\text{V}$ $di/dt=200\text{A}/\mu\text{s}$	$T_J=25^{\circ}\text{C}$	-	3.9	-	A
Reverse recovery charge	$Q_{RR}$	$I_F=8\text{A}$ $V_R=400\text{V}$ $di/dt=200\text{A}/\mu\text{s}$	$T_J=25^{\circ}\text{C}$	-	87.7	-	nC



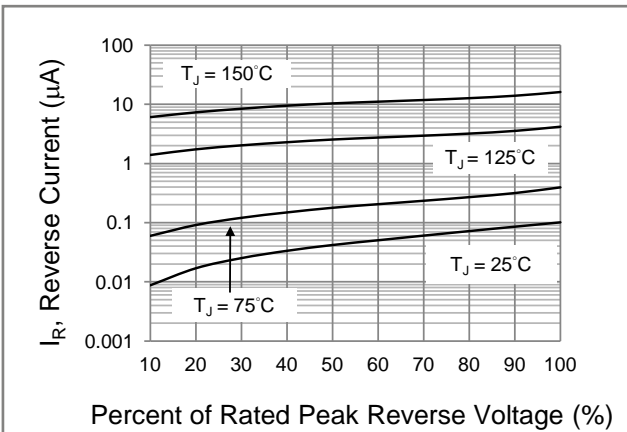
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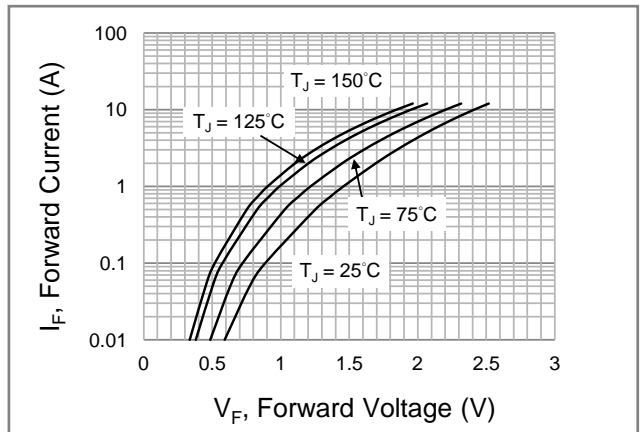
**Fig.1 Forward Current Derating Curve**



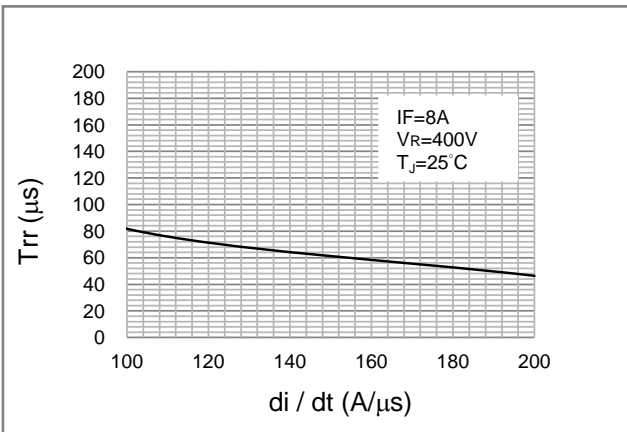
**Fig.2 Typical Junction Capacitance**



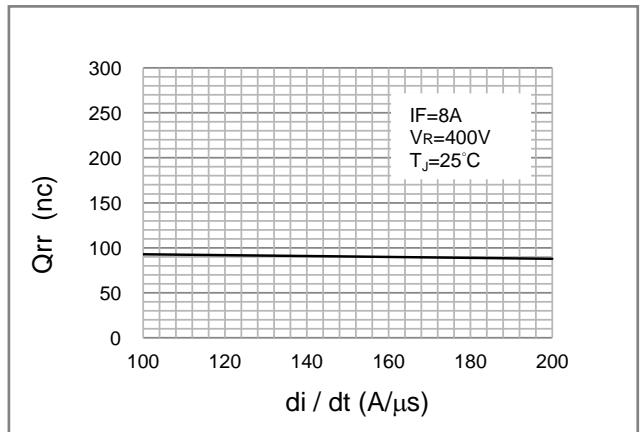
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse Recovery Time Versus  $di/dt$**

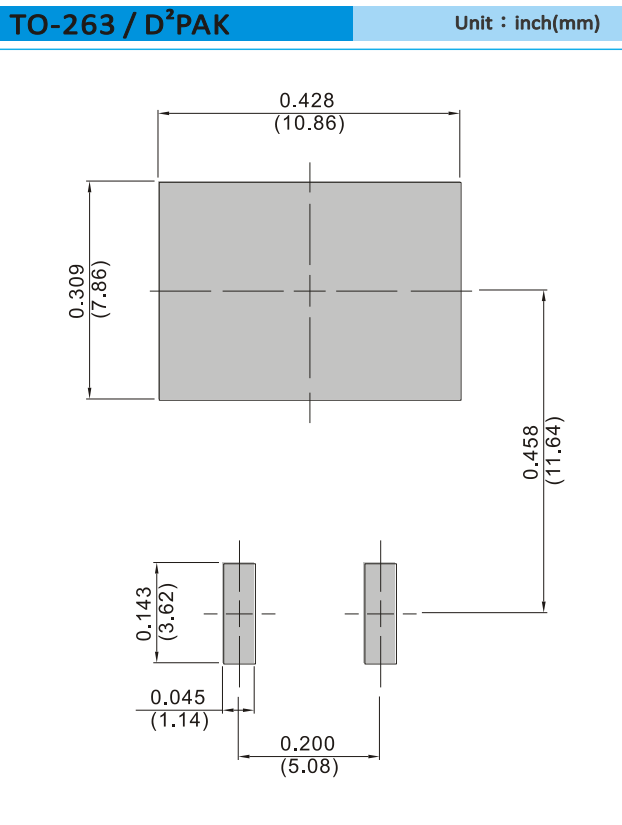


**Fig.6 Typical Reverse Recovery Charges Versus  $di/dt$**



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## MOUNTING PAD LAYOUT



## ORDER INFORMATION

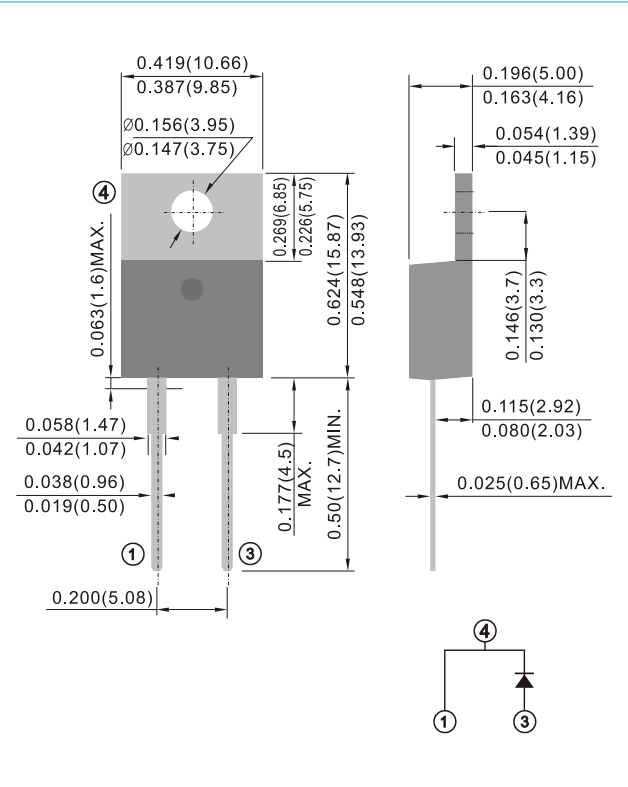
- Packing information  
T/R – 0.8K per 13" plastic Reel



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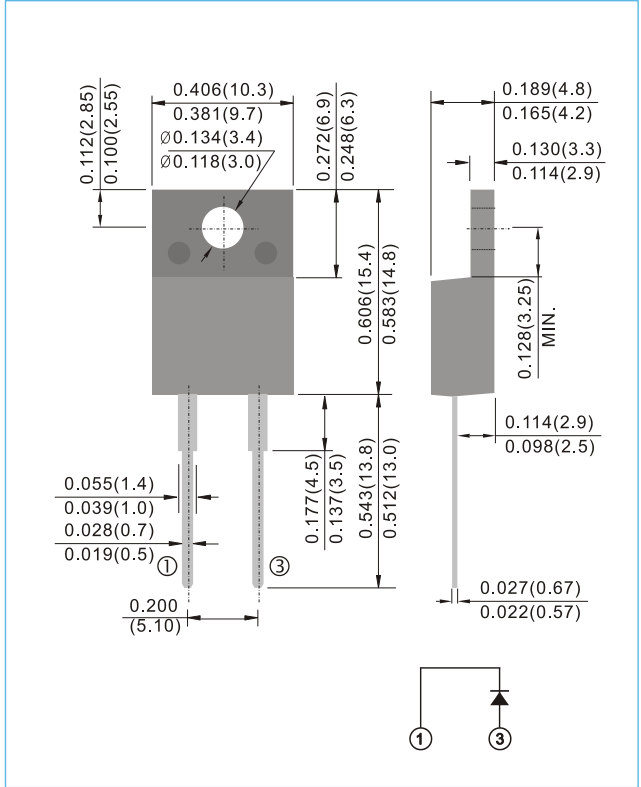
## TO-220AC

Unit : inch(mm)



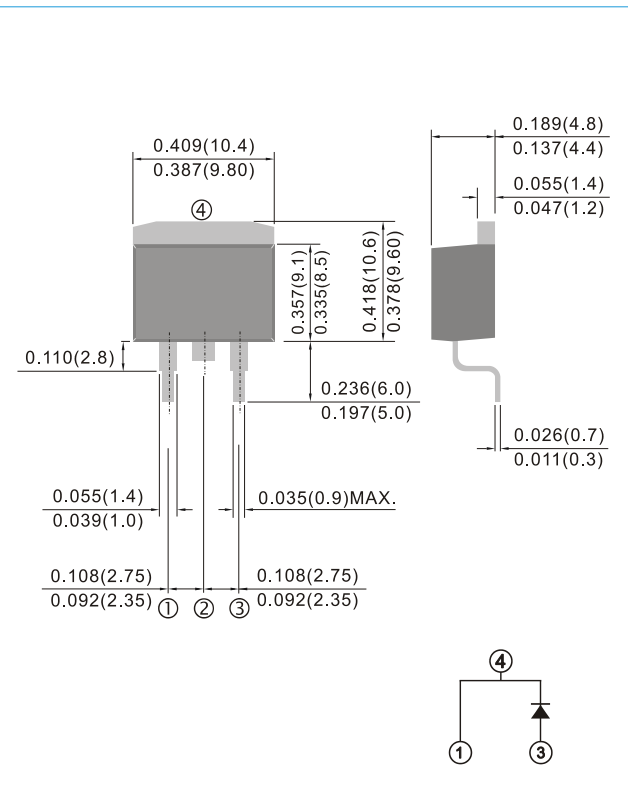
## ITO-220AC

Unit : inch(mm)



## TO-263 / D<sup>2</sup>PAK

Unit : inch(mm)





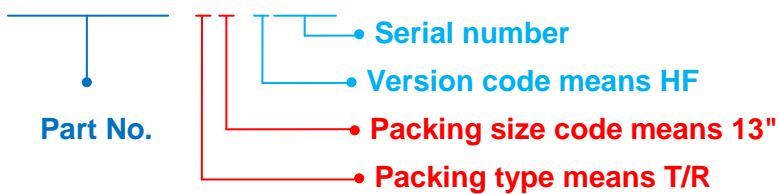
## QRT812 \ QRT812F \ QRT812D

### Part No\_packing code\_Version

QRT812\_T0\_00001  
QRT812F\_T0\_00001  
QRT812D\_R2\_00001

### For example :

RB500V-40\_R2\_00001



Packing Code <b>XX</b>				Version Code <b>XXXXX</b>		
Packing type	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> -5 <sup>th</sup> 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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