



## QR806/QR806F/QR806D

### PLANAR STRUCTURED SUPERFAST RECOVERY RECTIFIERS

**VOLTAGE** 600 Volt **CURRENT** 8 Ampere

#### FEATURES

- Planar structure with EPI wafer
- Ultrafast recovery time, low  $V_f$  and soft recovery
- For PFC (DCM/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

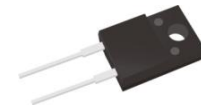
#### MECHANICAL DATA

- Case: TO-220AC, ITO-220AC, TO-263 package
- Terminals: Lead 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

QR806TO-220AC



QR806F ITO-220AC



QR806D TO-263



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

PARAMETER	SYMBOL	VALUE	UNIT
Maximum recurrent 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	$I_{F(AV)}$	8	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	120	A
Typical thermal resistance	$R_{\theta JC}$	TO-220AC(Note 1)	2
		ITO-220AC(Note 1)	5.5
		TO-263 (Note 1)	2
Operating junction temperature range	$T_J$	-55 to + 175	$^\circ\text{C}$
Storage temperature range	$T_{STG}$	-55 to + 175	$^\circ\text{C}$

NOTE :

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



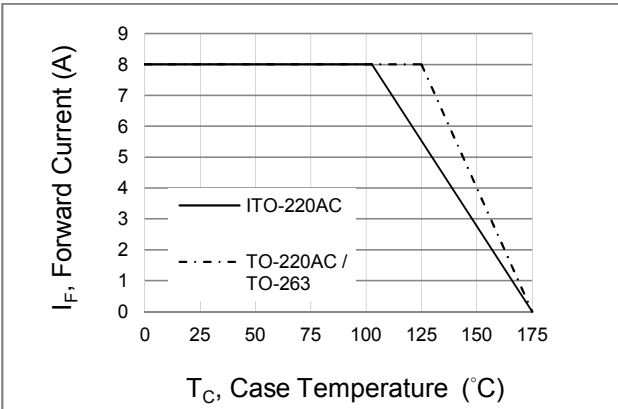
## QR806/QR806F/QR806D

### ELECTRICAL CHARACTERISTICS(T<sub>A</sub>=25°C unless otherwise noted)

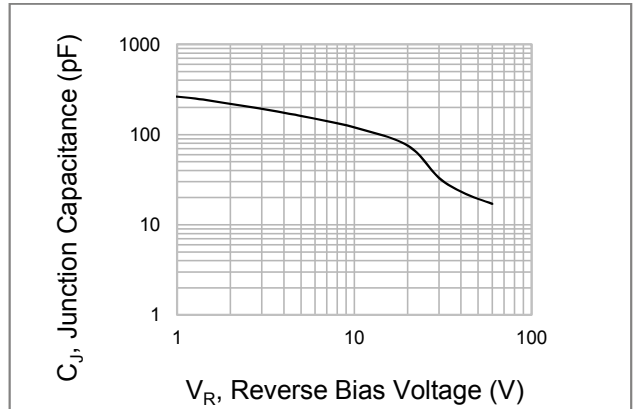
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Breakdown voltage	V <sub>BR</sub>	I <sub>R</sub> =100μA	600	-	-	V
Instantaneous forward voltage	V <sub>F</sub>	I <sub>F</sub> =1A I <sub>F</sub> =5A I <sub>F</sub> =8A T <sub>J</sub> =25°C	-	0.98 1.23 1.33	-	V
		I <sub>F</sub> =1A I <sub>F</sub> =5A I <sub>F</sub> =8A T <sub>J</sub> =125°C	-	0.73 1.01 1.13	-	V
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> =600V T <sub>J</sub> =25°C T <sub>J</sub> =125°C	-	-	3 100	μA
Reverse recovery time	T <sub>RR</sub>	I <sub>F</sub> =0.5A I <sub>R</sub> =1A I <sub>RR</sub> =0.25A T <sub>J</sub> =25°C	-	-	45	ns
		I <sub>F</sub> =1A V <sub>R</sub> =30V di/dt=100A/μs T <sub>J</sub> =25°C	-	-	35	ns
		I <sub>F</sub> =8A V <sub>R</sub> =400V di/dt=200A/μs T <sub>J</sub> =25°C	-	70	-	ns
Peak recovery current	I <sub>RRM</sub>	I <sub>F</sub> =8A V <sub>R</sub> =400V di/dt=200A/μs T <sub>J</sub> =25°C	-	3.5	-	A
Reverse recovery charge	Q <sub>RR</sub>	I <sub>F</sub> =8A V <sub>R</sub> =400V di/dt=200A/μs T <sub>J</sub> =25°C	-	150	-	nC
Softness factor = t <sub>b</sub> /t <sub>a</sub>	S	I <sub>F</sub> =8A V <sub>R</sub> =400V di/dt=200A/μs T <sub>J</sub> =25°C	-	1.38	-	-
Softness factor = t <sub>b</sub> /t <sub>a</sub>	S	I <sub>F</sub> =8A V <sub>R</sub> =400V di/dt=200A/μs T <sub>J</sub> =125°C	-	0.83	-	-



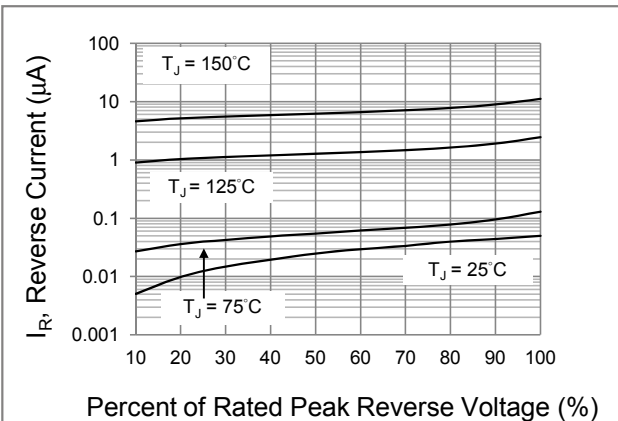
# QR806/QR806F/QR806D



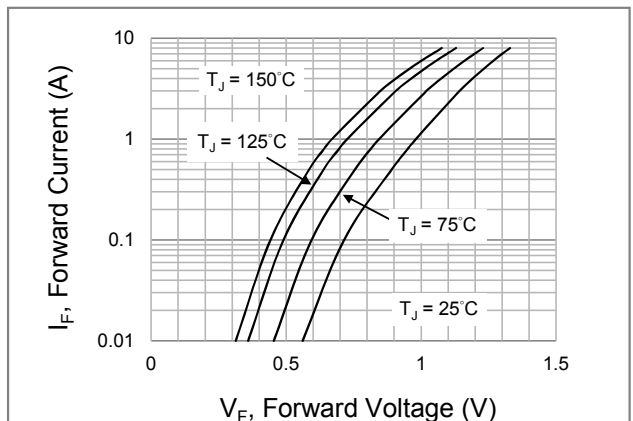
**Fig.1 Forward Current Derating Curve**



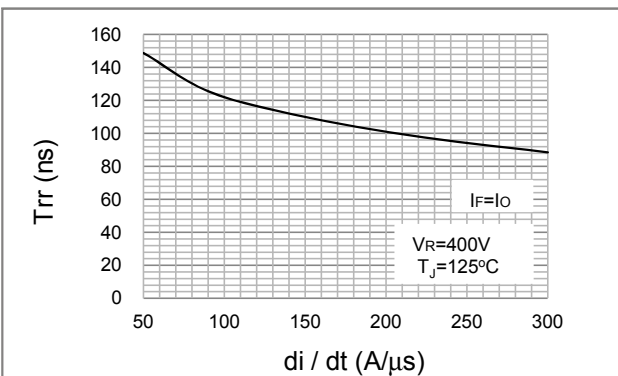
**Fig.2 Typical Junction Capacitance**



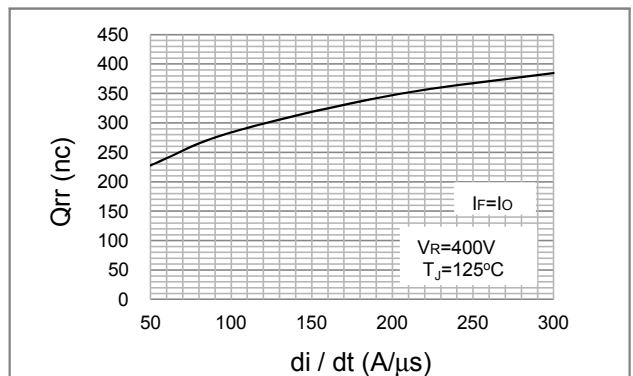
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse recovery time versus di/dt**



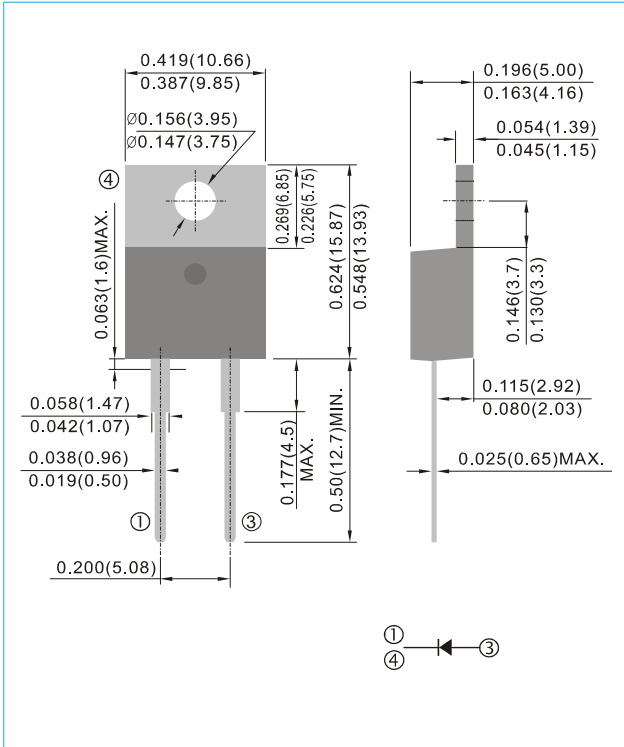
**Fig.6 Typical Reverse recovery charges versus di/dt**



# QR806/QR806F/QR806D

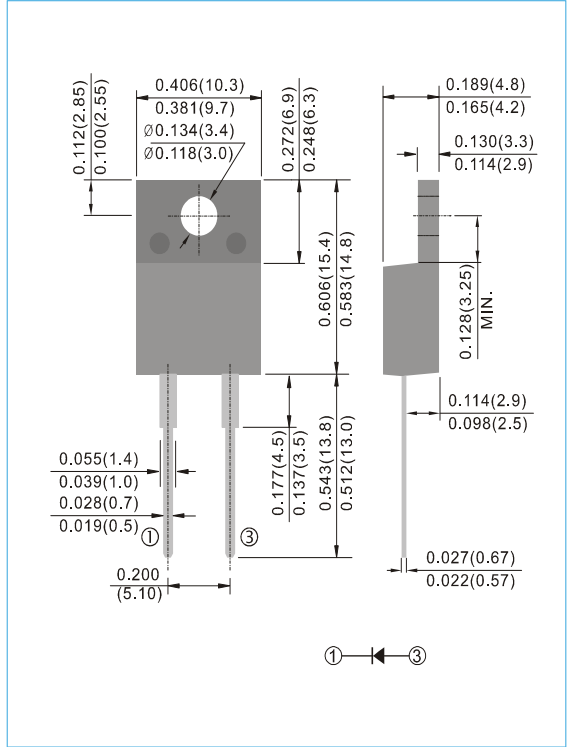
## TO-220AC

Unit : inch(mm)



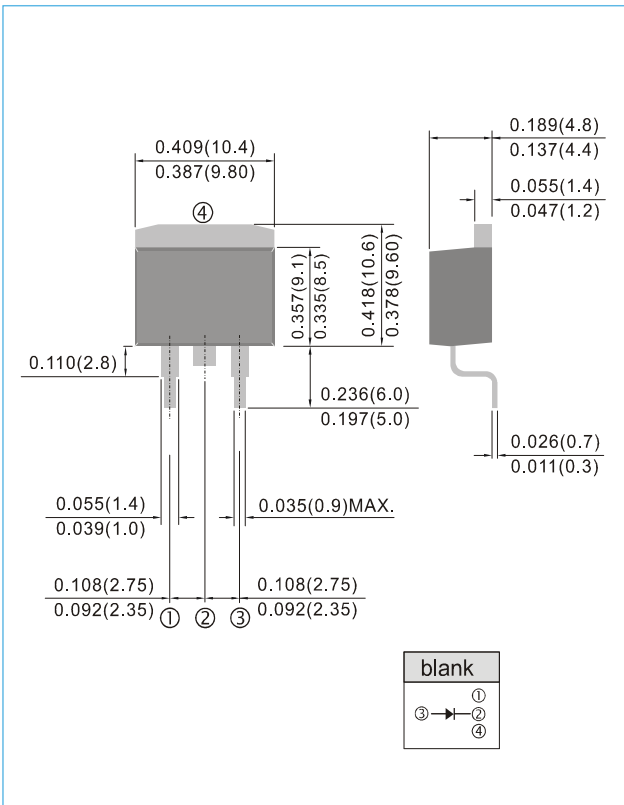
## ITO-220AC

Unit : inch(mm)



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

Unit : inch(mm)



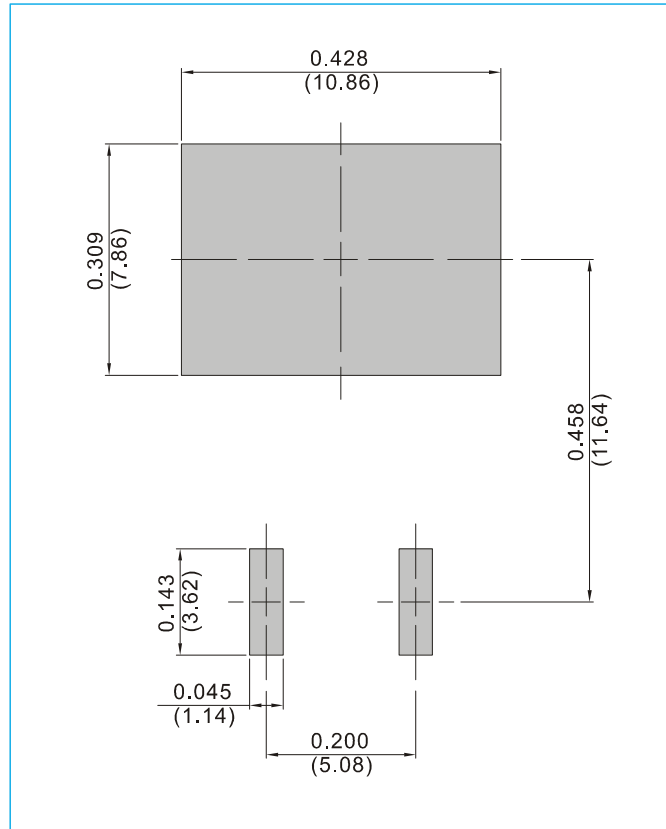


# QR806/QR806F/QR806D

## MOUNTING PAD LAYOUT

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

Unit : inch(mm)



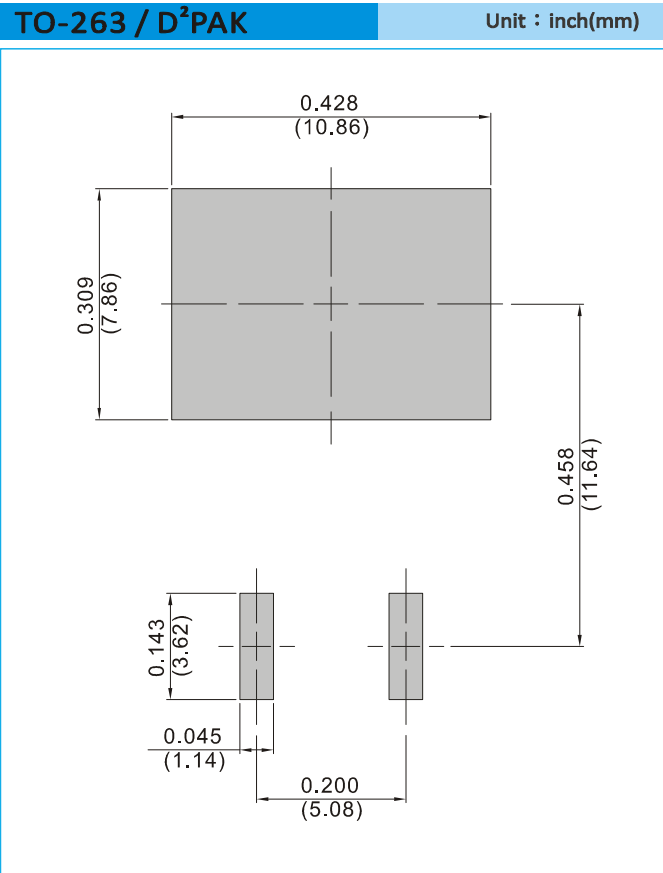
## ORDER INFORMATION

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



# QR806/QR806F/QR806D

## MOUNTING PAD LAYOUT



## ORDER INFORMATION

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



## QR806/QR806F/QR806D

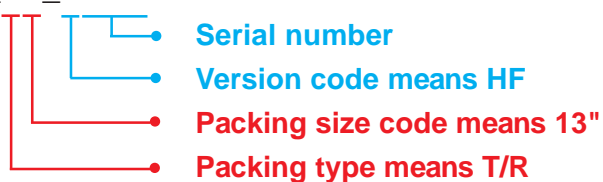
### Part No\_packing code\_Version

QR806\_T0\_00001  
QR806F\_T0\_00001  
QR806D\_R2\_00001

For example :

**RB500V-40\_R2\_00001**

Part No.



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)	<b>A</b>	N/A	<b>0</b>	<b>HF</b>	<b>0</b>	serial number
Tape and Reel (T/R)	<b>R</b>	7"	<b>1</b>	<b>RoHS</b>	<b>1</b>	serial number
Bulk Packing (B/P)	<b>B</b>	13"	<b>2</b>			
Tube Packing (T/P)	<b>T</b>	26mm	<b>X</b>			
Tape and Reel (Right Oriented) (TRR)	<b>S</b>	52mm	<b>Y</b>			
Tape and Reel (Left Oriented) (TRL)	<b>L</b>	PANASERT T/B CATHODE UP (PBCU)	<b>U</b>			
FORMING	<b>F</b>	PANASERT T/B CATHODE DOWN (PBCD)	<b>D</b>			



## QR806/QR806F/QR806D

---

### Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..
- Panjit International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.
- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.
- Since Panjit uses lot number as the tracking base, please provide the lot number for tracking when complaining.