



QR406/QR406F/QR406D/QD406S

PLANAR STRUCTURED SUPERFAST RECOVERY RECTIFIERS

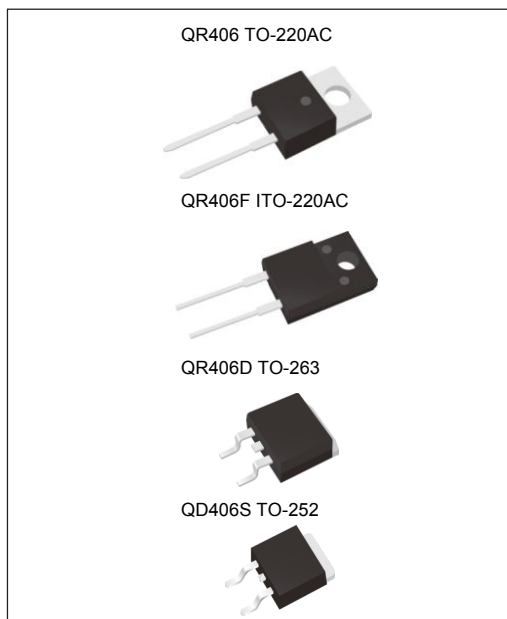
VOLTAGE 600 Volt **CURRENT** 4 Ampere

FEATURES

- Planar structure with EPI wafer
- Ultrafast recovery time, low V_F and soft recovery
- For PFCDM 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, TO-252 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
- TO-252 Weight: 0.0104 ounces, 0.297 grams



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	$I_{F(AV)}$	4	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	35	A
Typical thermal resistance	$R_{\theta JC}$	TO-220AC(Note 1) ITO-220AC(Note 1) TO-263 (Note 1) TO-252 (Note 2)	2 5.5 2 5.5 °C/W
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*0.5mm copper pad area , then measured the center of the marking side.



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ELECTRICAL CHARACTERISTICS(T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Breakdown voltage	V _{BR}	I _R =100μA T _J =25°C	600	-	-	V
Instantaneous forward voltage	V _F	I _F =1A T _J =25°C	-	1.02	-	V
		I _F =4A T _J =25°C	-	1.23	1.45	V
Instantaneous forward voltage	V _F	I _F =1A T _J =125°C	-	0.84	-	V
		I _F =4A T _J =125°C	-	1.1	1.3	V
Reverse leakage current	I _R	V _R =600V T _J =25°C T _J =125°C	- -	- -	3 100	μA
Reverse recovery time	T _{RR}	I _F =0.5A I _R =1A I _{RR} =0.25A T _J =25°C	-	-	45	ns
		I _F =1A V _R =30V di/dt=100A/μs T _J =25°C	-	-	35	ns
		I _F =4A V _R =400V di/dt=200A/μs T _J =25°C	-	60	-	ns
Peak recovery current	I _{RRM}	I _F =4A V _R =400V di/dt=200A/μs T _J =25°C	-	4	-	A
Reverse recovery charge	Q _{RR}	I _F =4A V _R =400V di/dt=200A/μs T _J =25°C	-	135	-	nC



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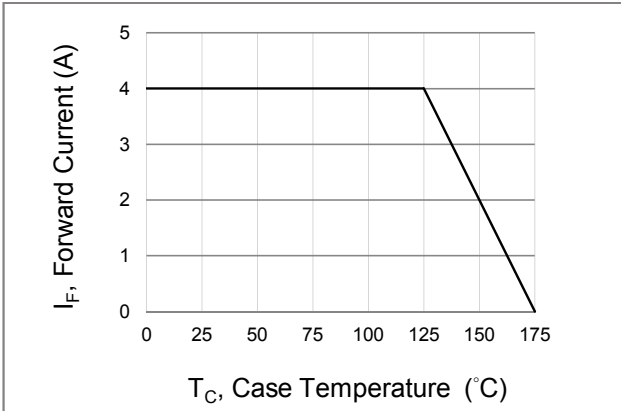


Fig.1 Forward Current Derating Curve

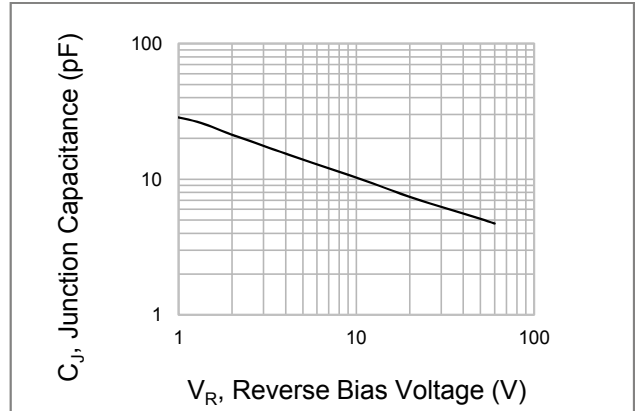


Fig.2 Typical Junction Capacitance

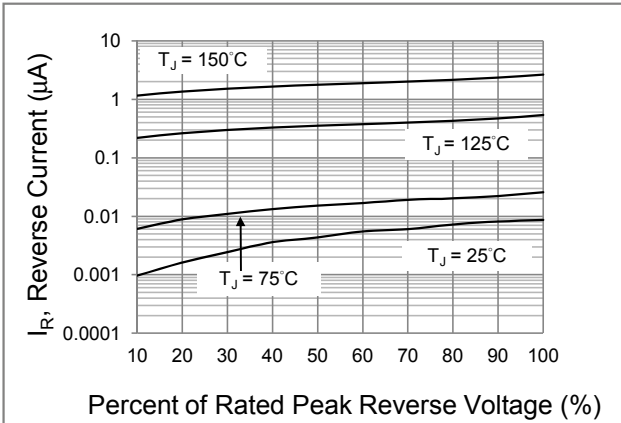


Fig.3 Typical Reverse Characteristics

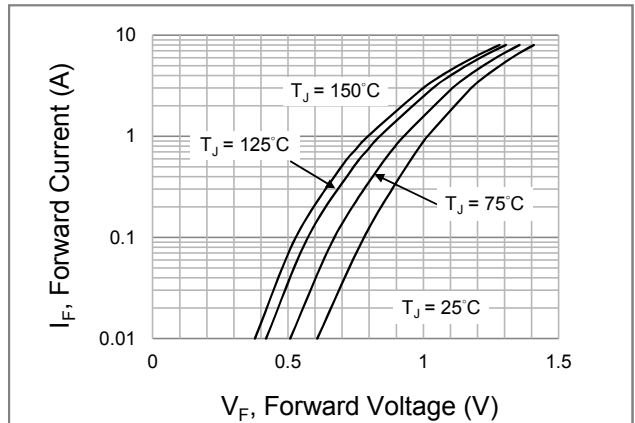


Fig.4 Typical Forward Characteristics

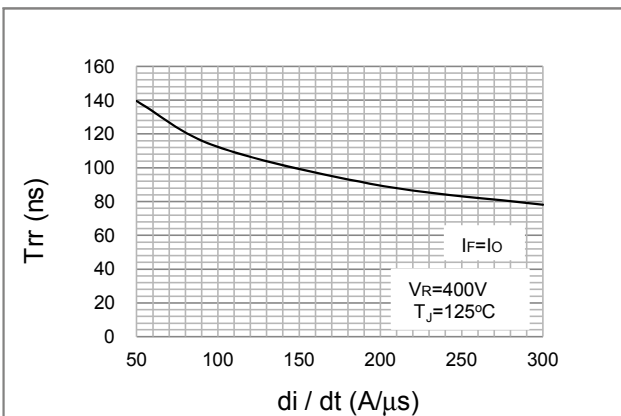


Fig.5 Typical Reverse recovery time versus di/dt

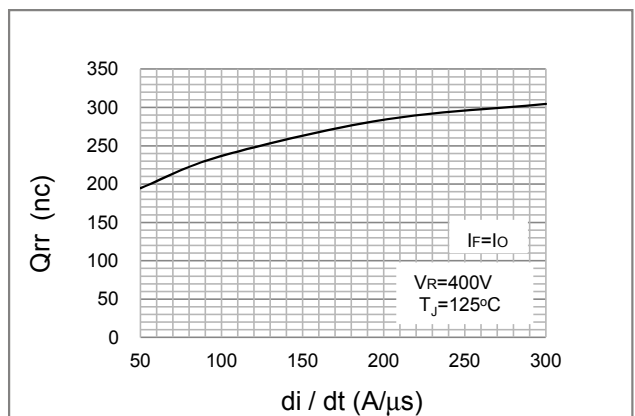


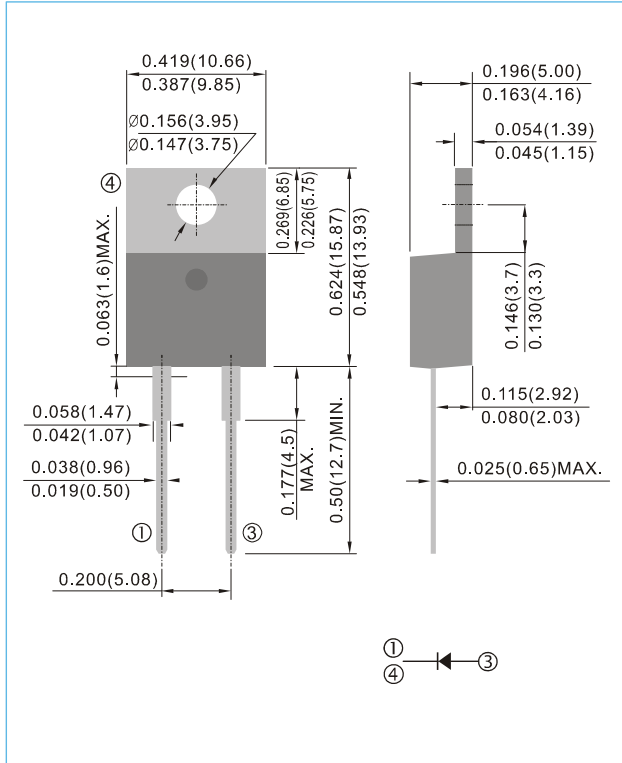
Fig.6 Typical Reverse recovery charges versus di/dt



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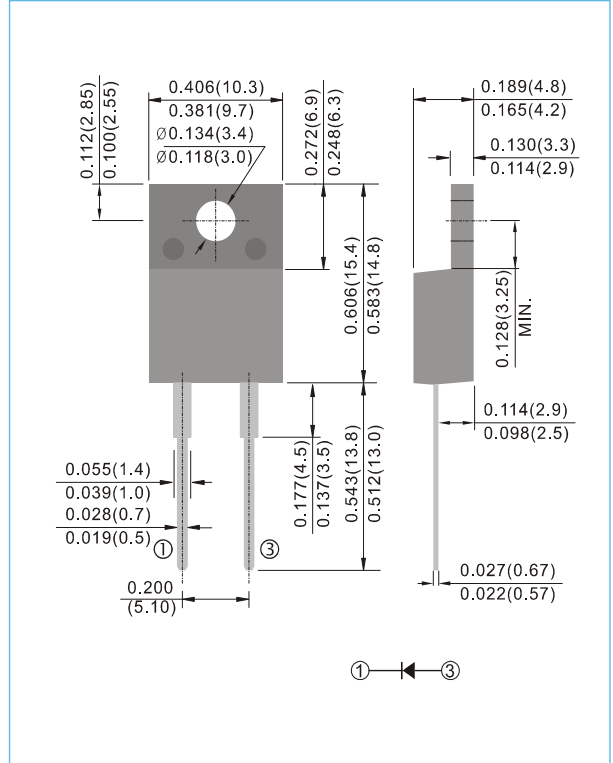
TO-220AC

Unit : inch(mm)



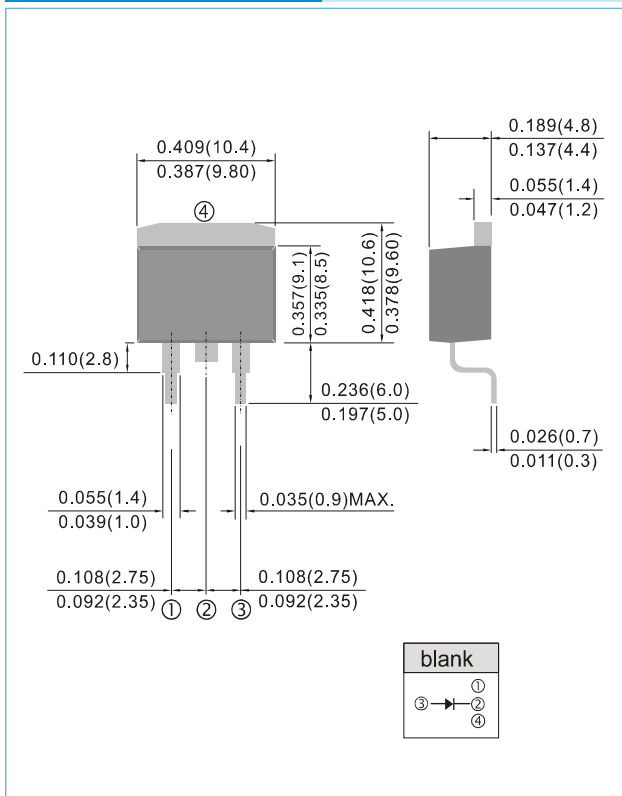
ITO-220AC

Unit : inch(mm)



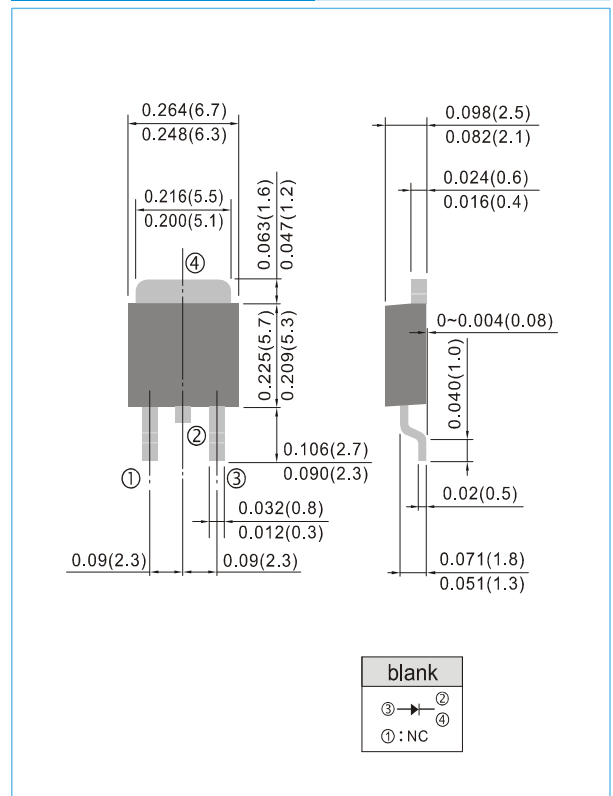
TO-263 / D²PAK

Unit : inch(mm)



TO-252

Unit : inch(mm)



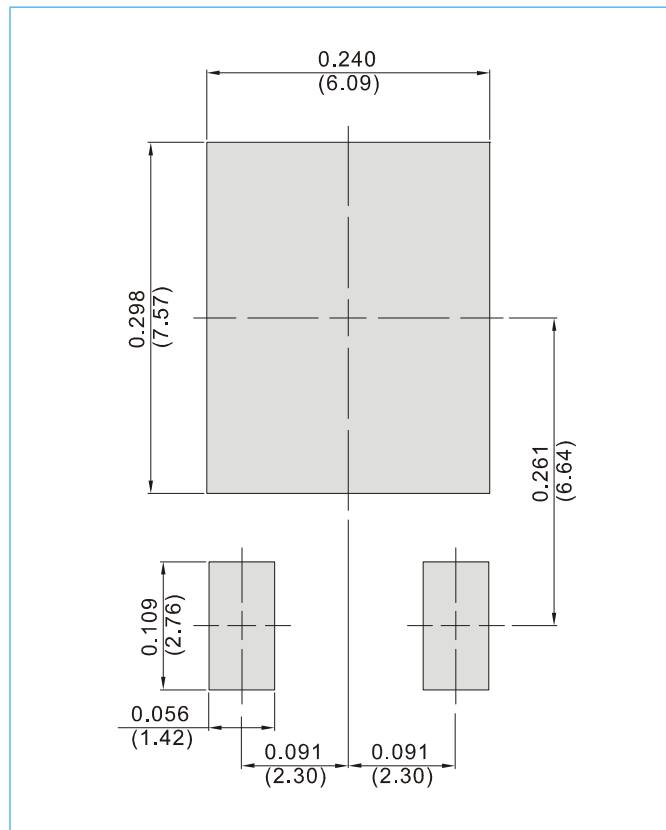


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MOUNTING PAD LAYOUT

TO-252

Unit : inch(mm)



ORDER INFORMATION

- Packing information
T/R - 3K per 13" plastic Reel

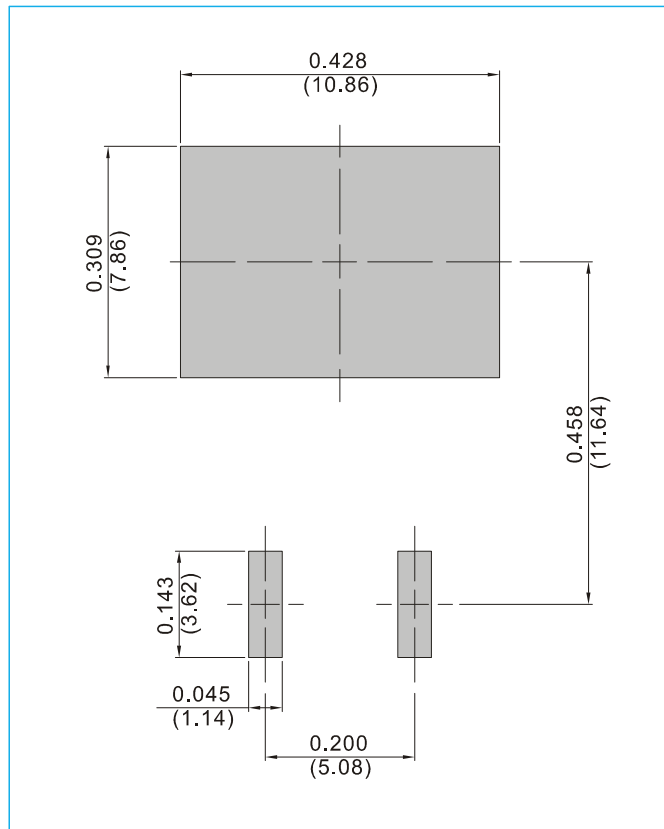


QR406/QR406F/QR406D/QD406S

MOUNTING PAD LAYOUT

TO-263 / D²PAK

Unit : inch(mm)



ORDER INFORMATION

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



QR406/QR406F/QR406D/QD406S

Part No_packing code_Version

QR406_T0_00001
 QR406F_T0_00001
 QR406D_R2_00001
 QD406S_L2_00001
 QD406S_S2_00001

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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