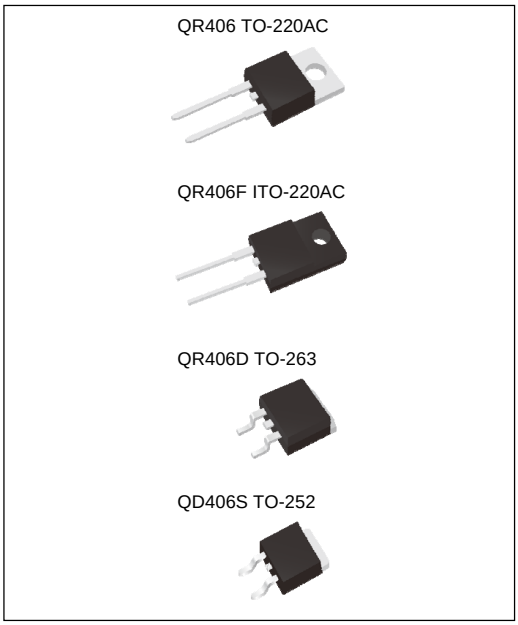
QR406/QR406F/QR406D/QD406S

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 PFC DCM operation
- Low leakage current
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
  Flame Retardant Epoxy Molding Compound
- Exceeds environmental standards of MIL-S-19500/228
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. . (Halogen Free)
  (TO-252)

MECHANICAL DATA

- Case: TO-220AC, ITO-220AC, TO-263, TO-252 package
- Terminals: Lead solderable per MIL-STD-750, Method 2026
- TO-220AC Weight: 0.065 ounces, 1.859 grams
- ITO-220AC Weight: 0.055 ounces, 1.5615 grams
- TO-263 Weight: 0.051 ounces, 1.46 grams
- TO-252 Weight: 0.0104 ounces, 0.297 grams

MAXIMUM RATINGS(T_A=25°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 TO-220AC(Note 1) ITO-220AC(Note 1) TO-263 (Note 1) TO-252 (Note 2)	$R_{\Theta JC}$	2 5.5 2 5.5	°C/W
Operating junction temperature range	T_J	-55 to + 150	°C
Storage temperature range	T_{STG}	-55 to + 150	°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 I_F=4A	T_J=25°C	- -	1.02 1.23	- 1.45	V
		I_F=1A I_F=4A	T_J=125°C	- -	0.84 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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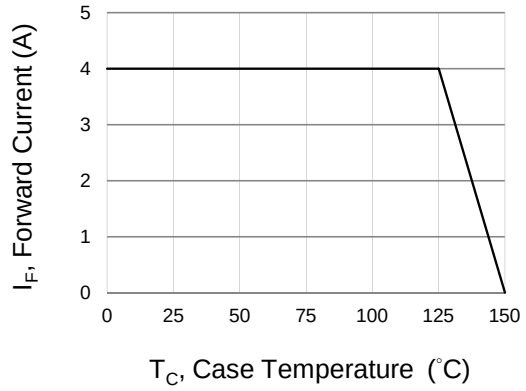

Fig.1 Forward Current Derating Curve

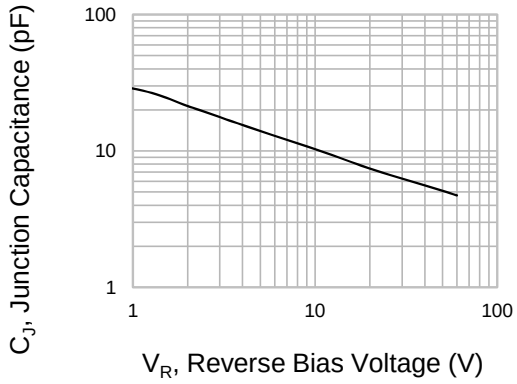

Fig.2 Typical Junction Capacitance

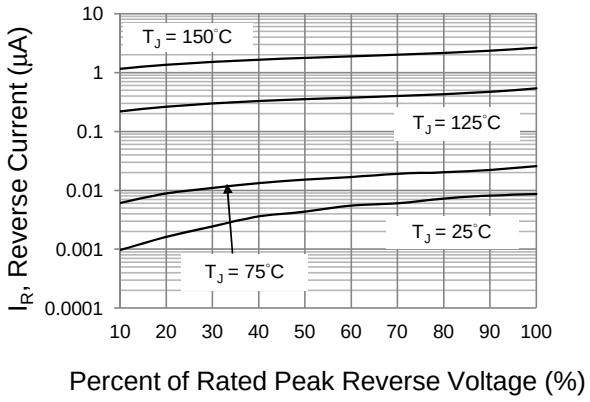

Fig.3 Typical Reverse Characteristics

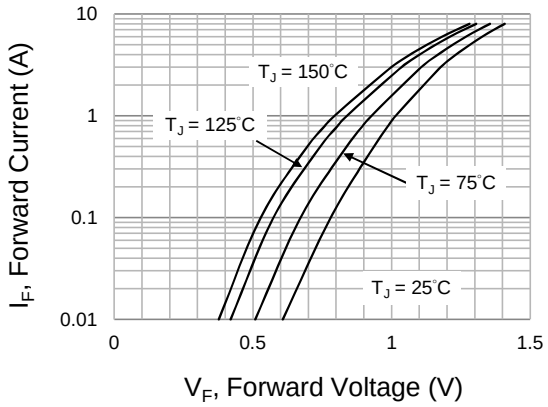

Fig.4 Typical Forward Characteristics

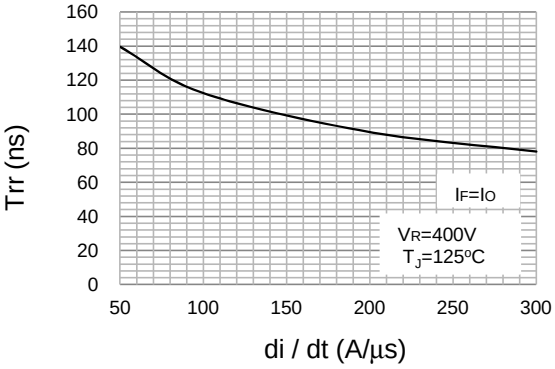

Fig.5 Typical Reverse recovery time versus di/dt

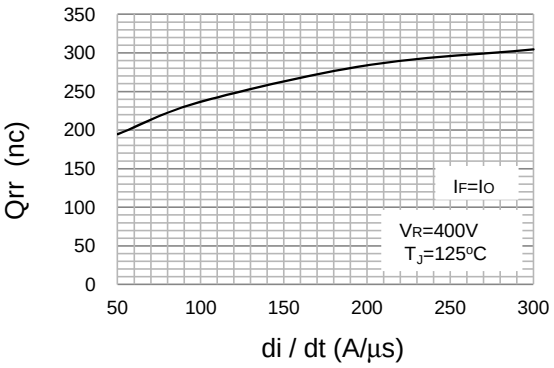

Fig.6 Typical Reverse recovery charges versus di/dt

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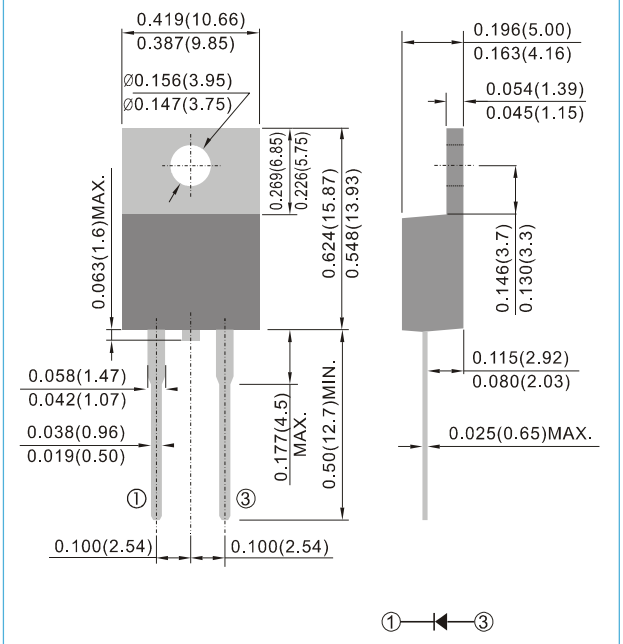
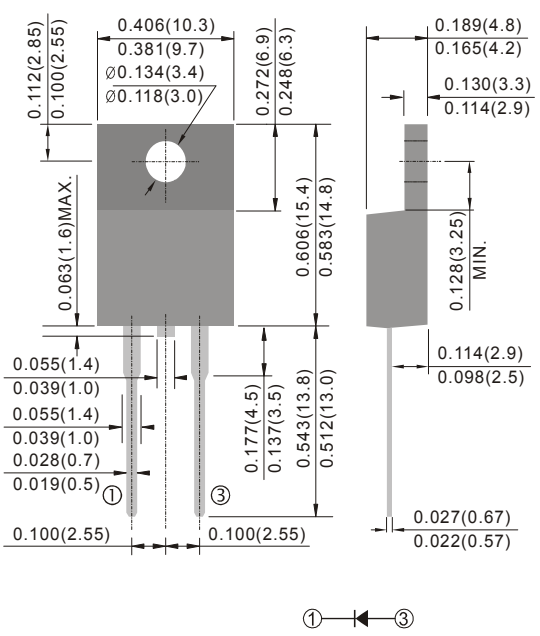
TO-220AC

Unit : inch(mm)



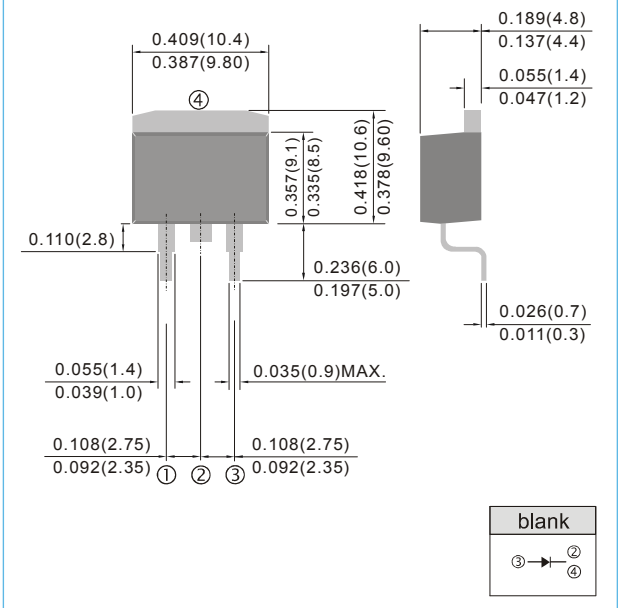
ITO-220AC

Unit : inch(mm)



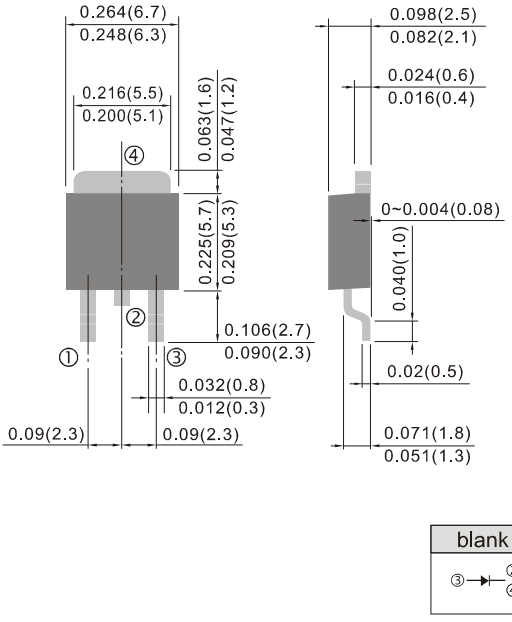
TO-263 / D²PAK

Unit : inch(mm)



TO-252

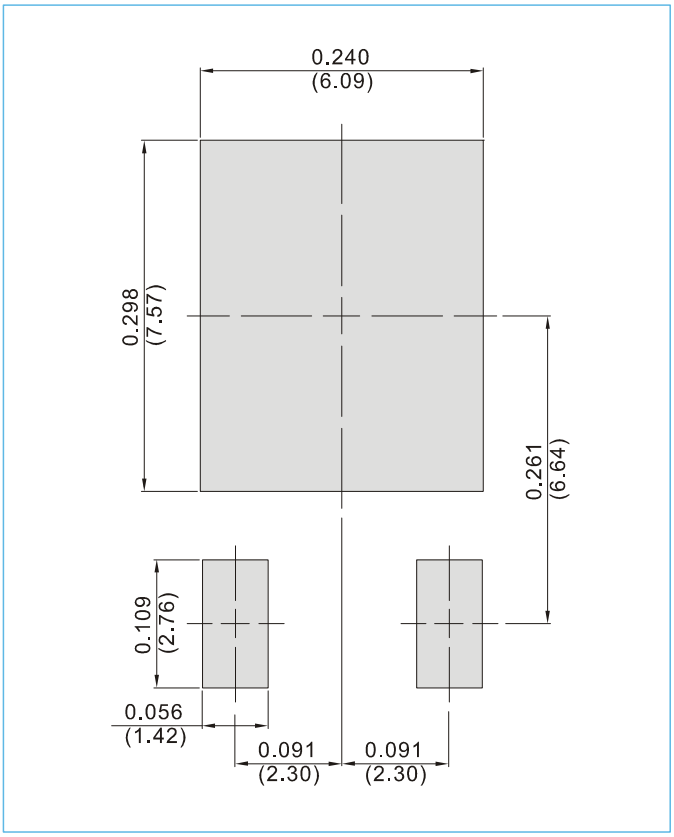
Unit : inch(mm)



QR406/QR406F/QR406D/QD406S

MOUNTING PAD LAYOUT

TO-252 Unit : inch(mm)



ORDER INFORMATION

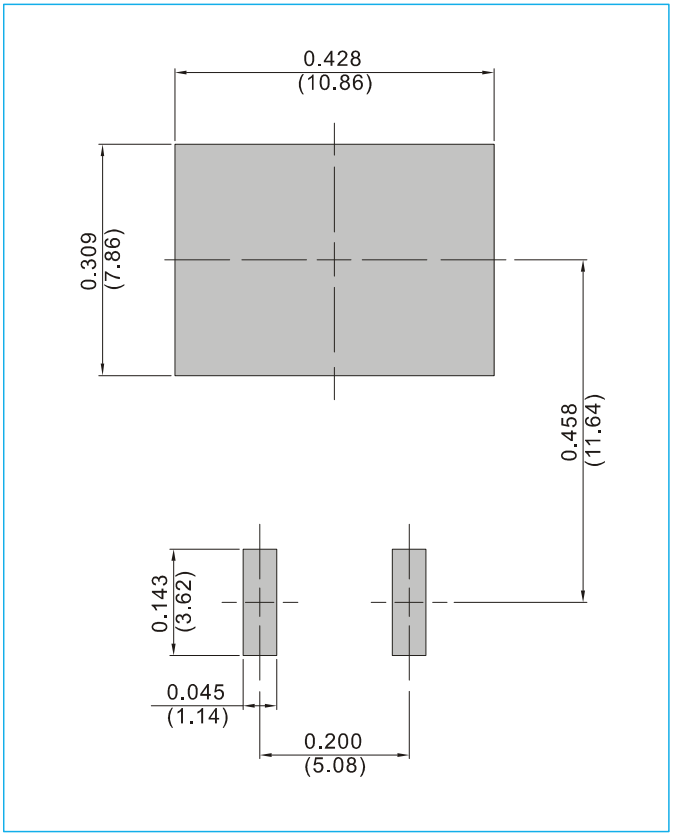
- Packing information

  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
QR406_T0_10001
QR406F_T0_00001
QR406F_T0_10001
QR406D_R2_00001
QR406D_R2_10001
QD406S_T0_00001

For example :

RB500V-40_R2_00001

Part No.

Serial number
Version code means HF
Packing size code means 13"
Packing type means T/R

Packing Code XX				Version Code XXXXX		
Packing type	1st Code	Packing size code	2nd Code	HF or RoHS	1st Code	2nd~5th 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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