



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

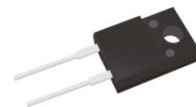
MECHANICAL DATA

- 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

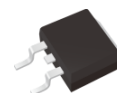
QR806TO-220AC



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.



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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 | 600 | - | - | V | |
| Instantaneous forward voltage | V _F | I _F =1A | - | 0.98 | - | V | |
| | | I _F =5A | - | 1.23 | - | | |
| | | I _F =8A | - | 1.33 | 1.65 | | |
| | | T _J =25°C | - | - | - | - | |
| | | I _F =1A | - | 0.73 | - | V | |
| | | I _F =5A | - | 1.01 | - | | |
| | | I _F =8A | - | 1.13 | 1.35 | | |
| 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 =8A V _R =400V di/dt=200A/μs | T _J =25°C | - | 70 | - | ns |
| Peak recovery current | I _{RRM} | I _F =8A V _R =400V di/dt=200A/μs | T _J =25°C | - | 3.5 | - | A |
| Reverse recovery charge | Q _{RR} | I _F =8A V _R =400V di/dt=200A/μs | T _J =25°C | - | 150 | - | nC |
| Softness factor = t _b /t _a | S | I _F =8A V _R =400V di/dt=200A/μs | T _J =25°C | - | 1.38 | - | - |
| Softness factor = t _b /t _a | S | I _F =8A V _R =400V di/dt=200A/μs | T _J =125°C | - | 0.83 | - | - |



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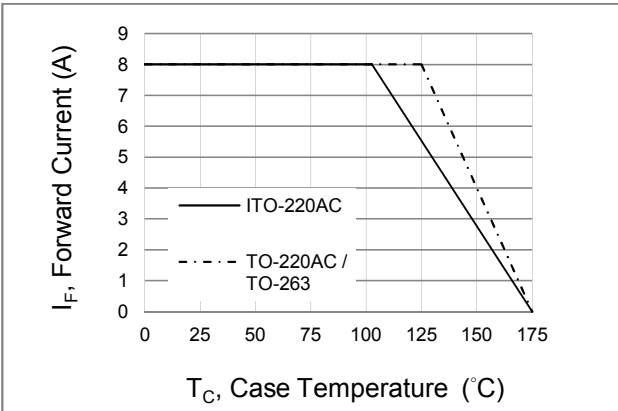


Fig.1 Forward Current Derating Curve

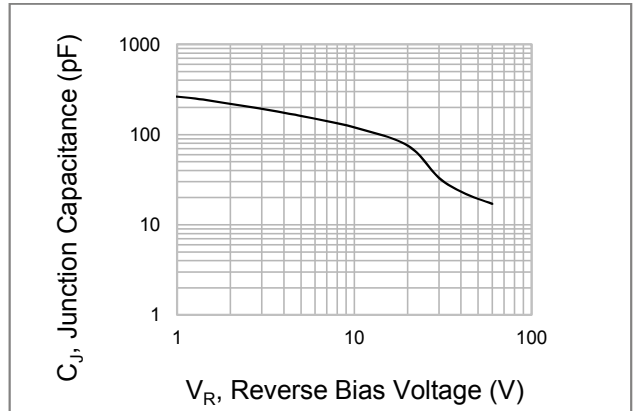


Fig.2 Typical Junction Capacitance

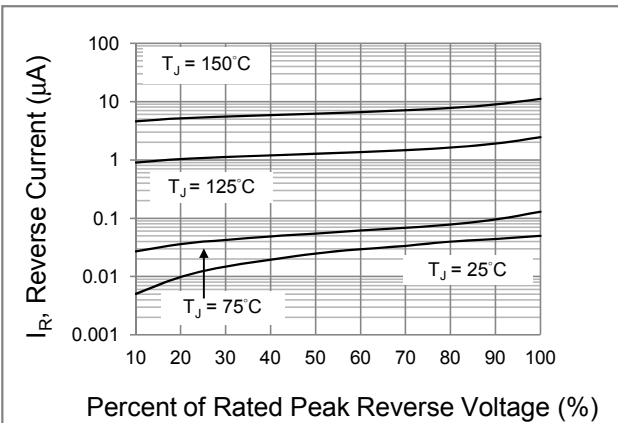


Fig.3 Typical Reverse Characteristics

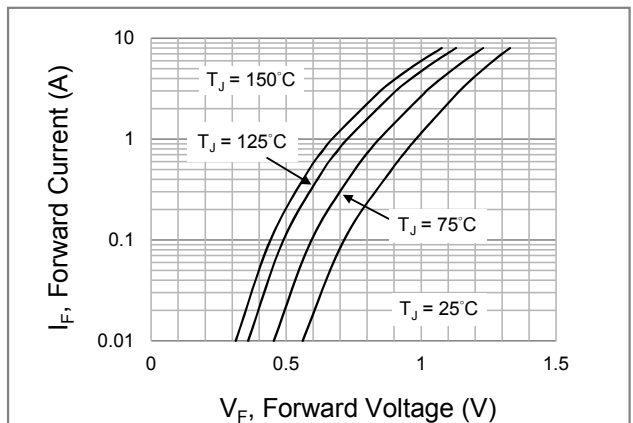


Fig.4 Typical Forward Characteristics

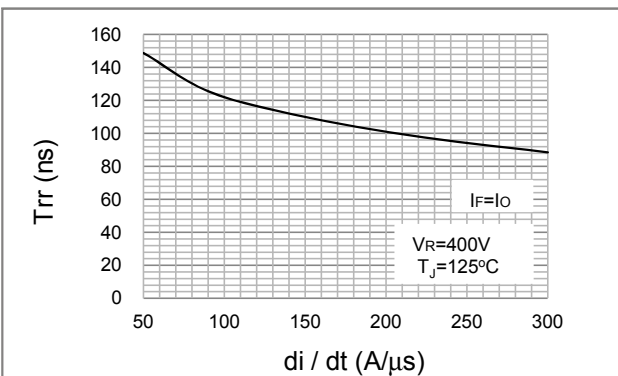


Fig.5 Typical Reverse recovery time versus di/dt

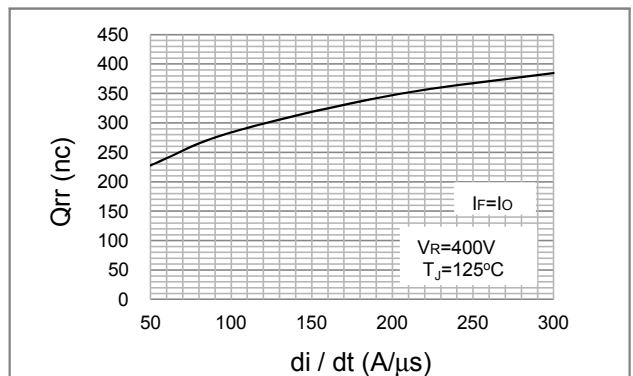


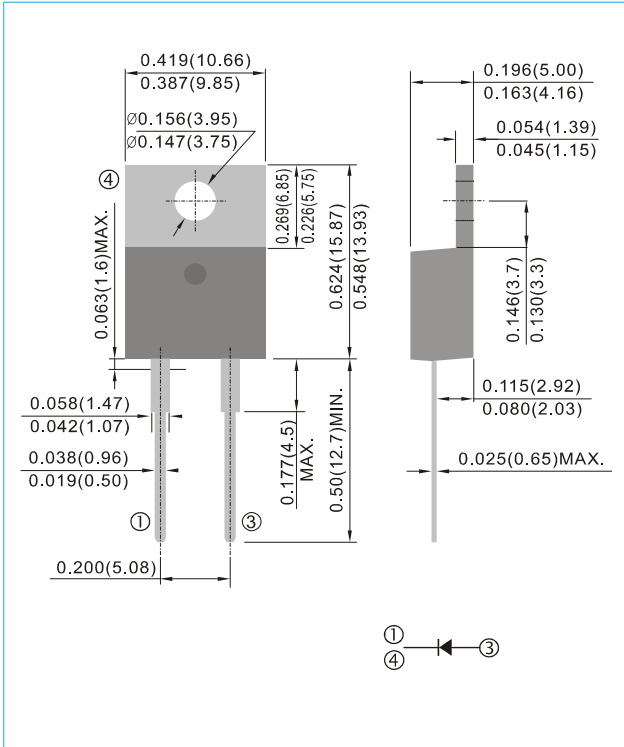
Fig.6 Typical Reverse recovery charges versus di/dt



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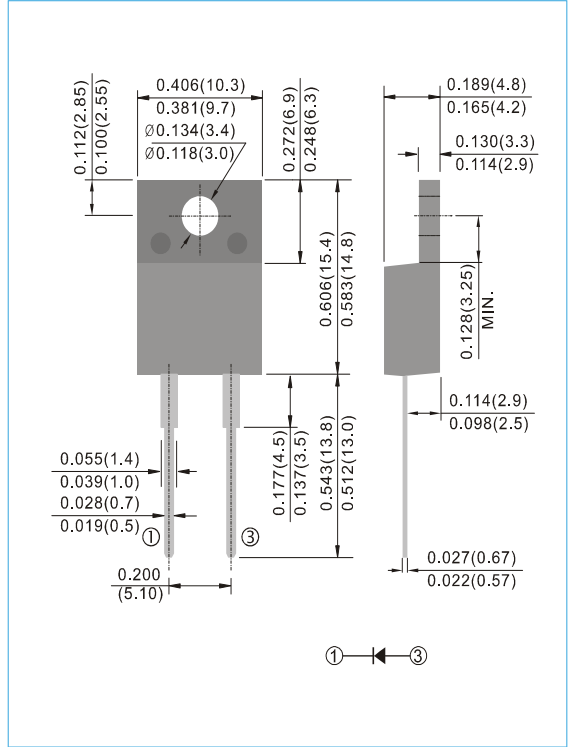
TO-220AC

Unit : inch(mm)



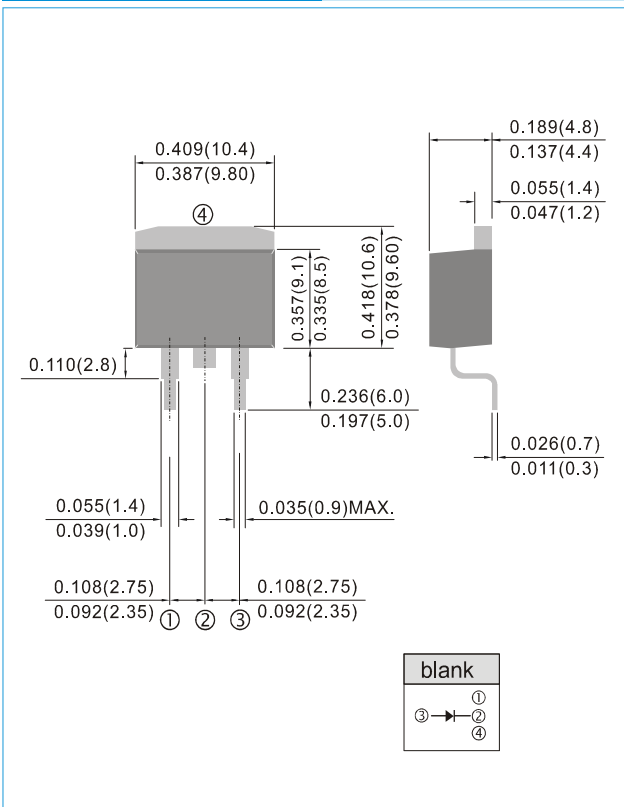
ITO-220AC

Unit : inch(mm)



TO-263 / D²PAK

Unit : inch(mm)



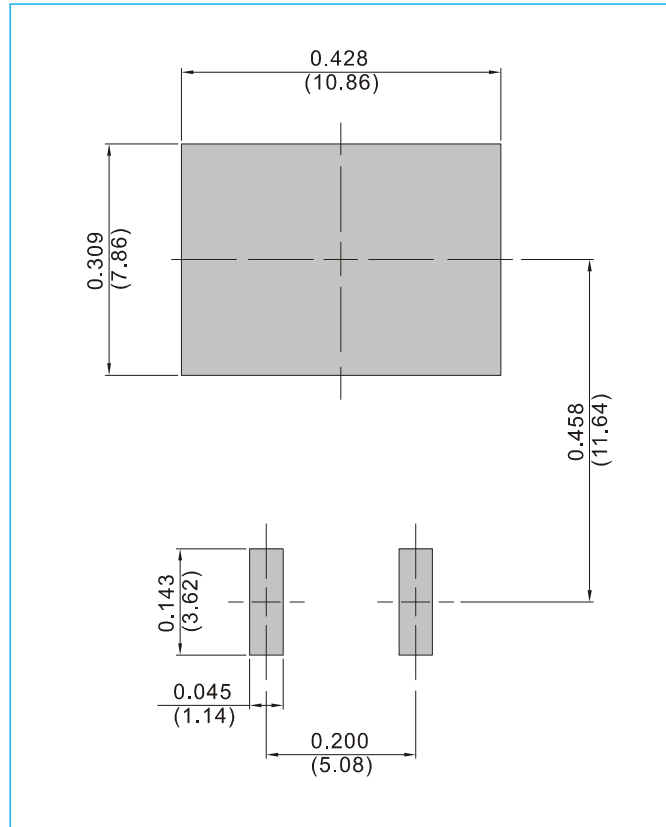


QR806/QR806F/QR806D

MOUNTING PAD LAYOUT

TO-263 / D²PAK

Unit : inch(mm)



ORDER INFORMATION

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

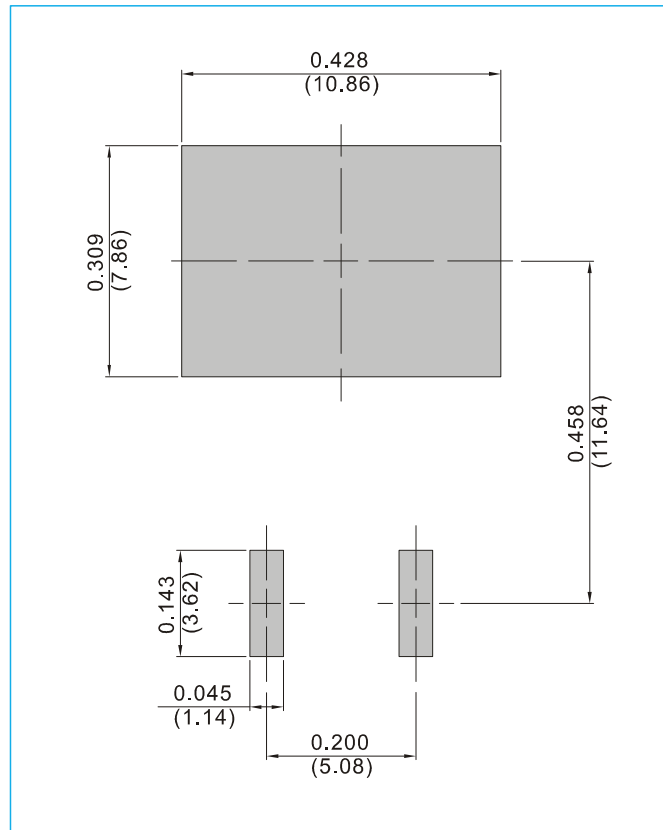


QR806/QR806F/QR806D

MOUNTING PAD LAYOUT

TO-263 / D²PAK

Unit : inch(mm)



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



| 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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