



QR1006/QR1006F/QR1006D

PLANAR STRUCTURED SUPERFAST RECOVERY RECTIFIERS

VOLTAGE 600 Volt **CURRENT** 10 Ampere

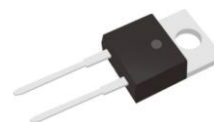
FEATURES

- 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

QR1006 TO-220AC



QR1006F ITO-220AC



QR1006D 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	$I_{F(AV)}$	10	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	190	A
Typical thermal resistance	$R_{\theta JC}$	TO-220AC(Note 1) 2 ITO-220AC(Note 1) 5.5 TO-263 (Note 1) 2	$^{\circ}\text{C/W}$
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($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Breakdown voltage	V_{BR}	$I_R=100\mu\text{A}$	600	-	-	V
Instantaneous forward voltage	V_F	$I_F=1\text{A}$	-	0.91	-	V
		$I_F=5\text{A}$	-	1.17	-	
		$I_F=10\text{A}$	-	1.32	1.55	
		$T_J=25^\circ\text{C}$	-	-	-	-
Instantaneous forward voltage	V_F	$I_F=1\text{A}$	-	0.66	-	V
		$I_F=5\text{A}$	-	0.91	-	
		$I_F=10\text{A}$	-	1.06	1.2	
		$T_J=125^\circ\text{C}$	-	-	-	-
Reverse leakage current	I_R	$V_R=600\text{V}$	-	-	3	μA
Reverse recovery time	T_{RR}	$I_F=0.5\text{A}$	-	-	45	ns
		$I_R=1\text{A}$	-	-	-	
		$I_{RR}=0.25\text{A}$	-	-	-	
		$T_J=25^\circ\text{C}$	-	-	-	-
Reverse recovery time	T_{RR}	$I_F=1\text{A}$	-	-	35	ns
		$V_R=30\text{V}$	-	-	-	
		$di/dt=100\text{A}/\mu\text{s}$	-	-	-	-
Reverse recovery time	T_{RR}	$I_F=10\text{A}$	-	55	-	ns
		$V_R=400\text{V}$	-	-	-	
		$di/dt=200\text{A}/\mu\text{s}$	-	-	-	-
Peak recovery current	I_{RRM}	$I_F=10\text{A}$	-	4.5	-	A
Peak recovery current	I_{RRM}	$V_R=400\text{V}$	-	-	-	-
		$di/dt=200\text{A}/\mu\text{s}$	-	-	-	-
		$T_J=25^\circ\text{C}$	-	-	-	-
Reverse recovery charge	Q_{RR}	$I_F=10\text{A}$	-	125	-	nC
Reverse recovery charge	Q_{RR}	$V_R=400\text{V}$	-	-	-	-
		$di/dt=200\text{A}/\mu\text{s}$	-	-	-	-
		$T_J=25^\circ\text{C}$	-	-	-	-
Softness factor = t_b/t_a	S	$I_F=10\text{A}$	-	1.21	-	-
Softness factor = t_b/t_a	S	$V_R=400\text{V}$	-	-	-	-
		$di/dt=200\text{A}/\mu\text{s}$	-	-	-	-
		$T_J=25^\circ\text{C}$	-	-	-	-
Softness factor = t_b/t_a	S	$I_F=10\text{A}$	-	0.63	-	-
Softness factor = t_b/t_a	S	$V_R=400\text{V}$	-	-	-	-
		$di/dt=200\text{A}/\mu\text{s}$	-	-	-	-
		$T_J=125^\circ\text{C}$	-	-	-	-



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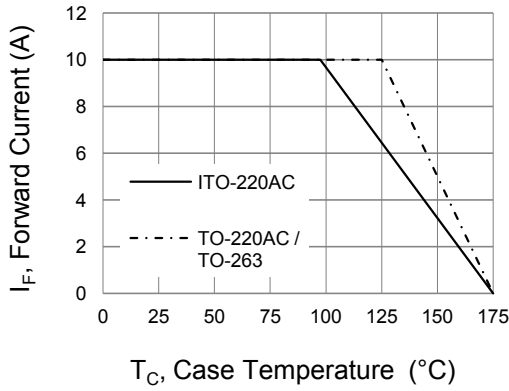


Fig.1 Forward Current Derating Curve

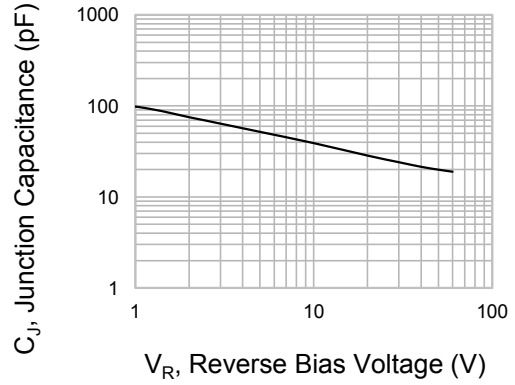


Fig.2 Typical Junction Capacitance

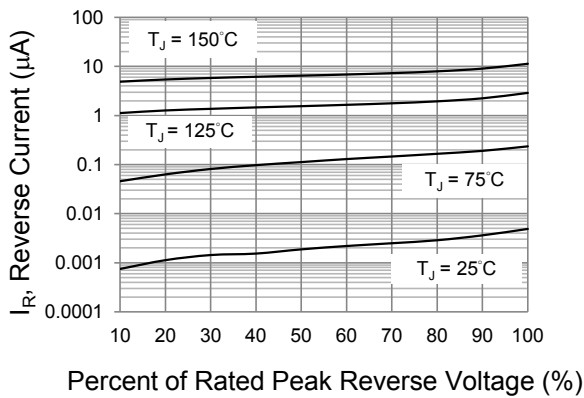


Fig.3 Typical Reverse Characteristics

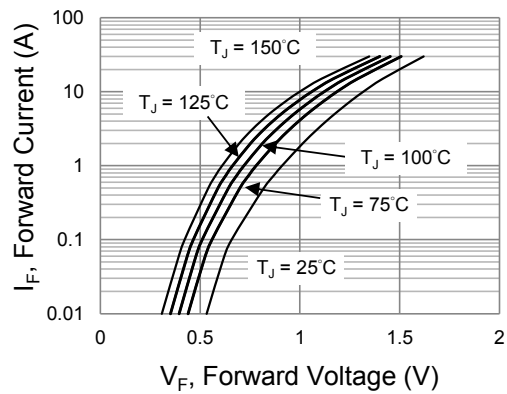


Fig.4 Typical Forward Characteristics

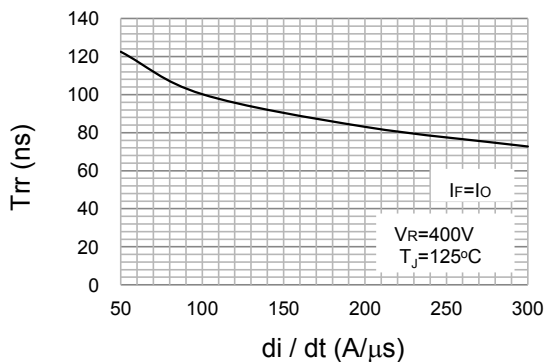


Fig.5 Typical Reverse recovery time versus di/dt

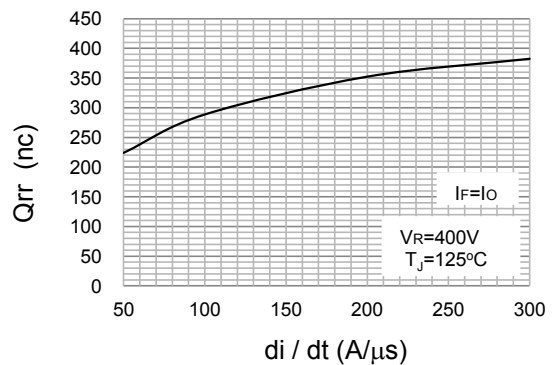


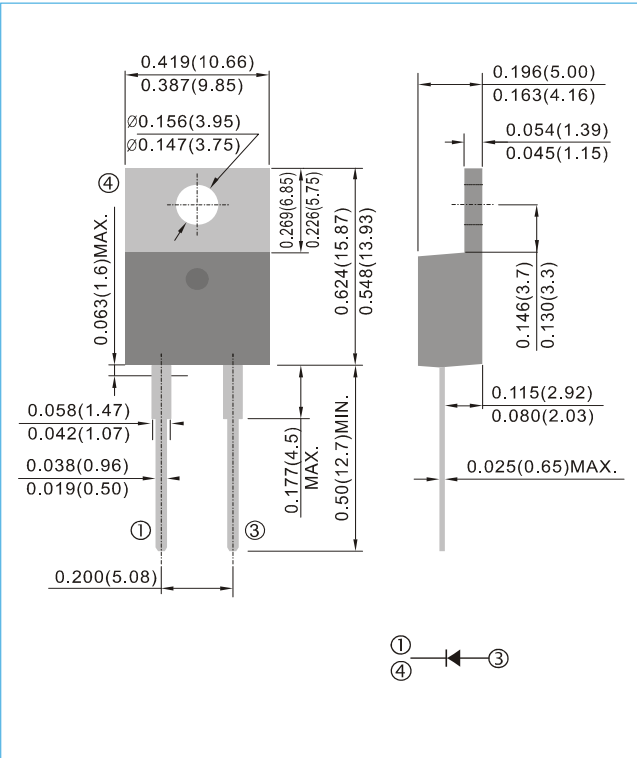
Fig.6 Typical Reverse recovery charges versus di/dt



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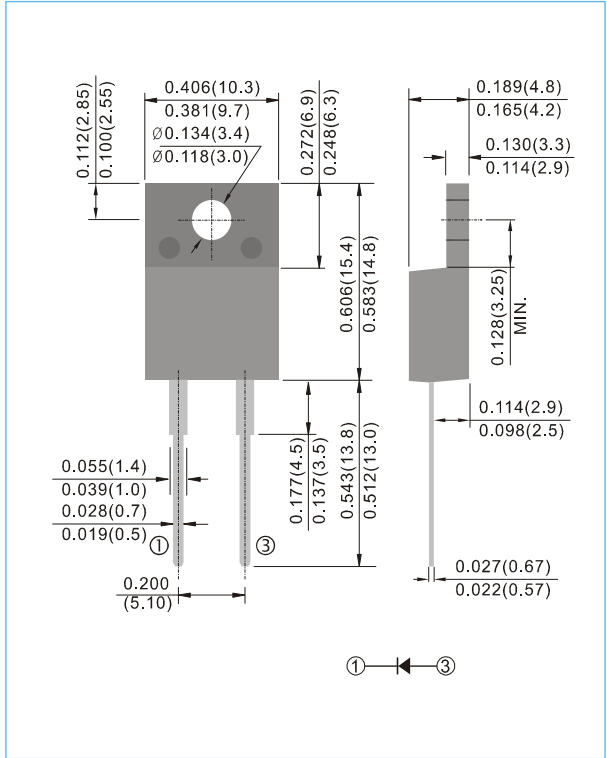
TO-220AC

Unit : inch(mm)



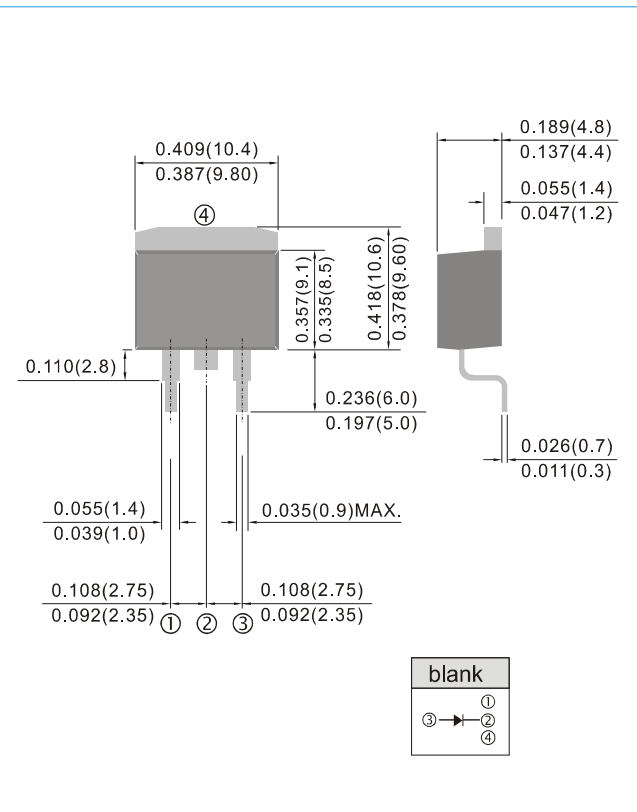
ITO-220AC

Unit : inch(mm)



TO-263 / D²PAK

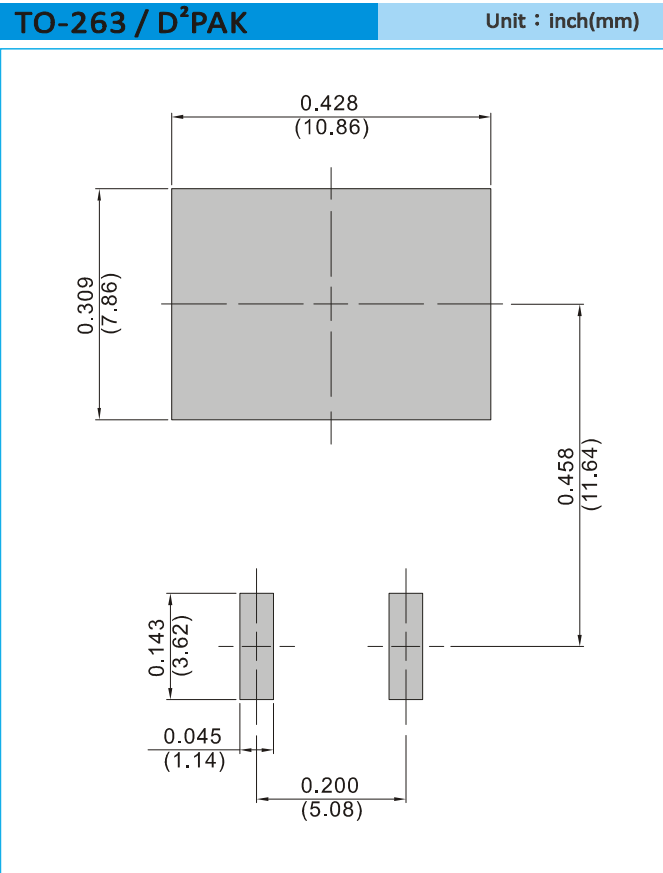
Unit : inch(mm)





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MOUNTING PAD LAYOUT



ORDER INFORMATION

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



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Part No_packing code_Version

QR1006_T0_00001
QR1006F_T0_00001
QR1006D_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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