

QRT2003DC SERIES

SUPERFAST RECOVERY RECTIFIERS

VOLTAGE 300~400 Volts **CURRENT** 20 Amperes

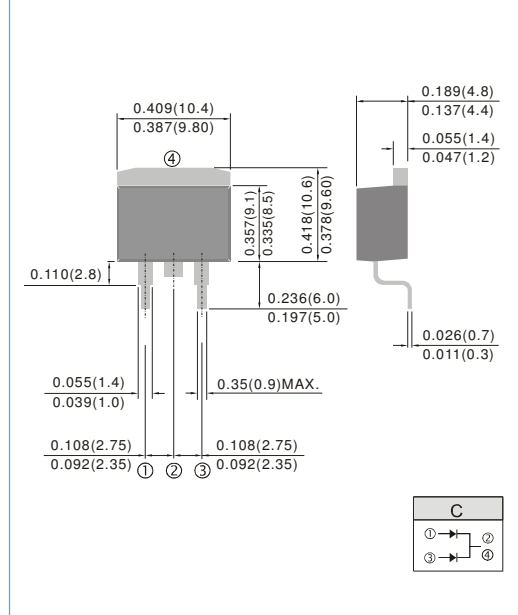
TO-263 / D²PAK Unit : inch(mm)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
Flame Retardant Epoxy Molding Compound
- Exceeds environmental standards of MIL-S-19500/228
- Super fast recovery times, high voltage
- Lead free in comply with EU RoHS 2002/95/EC directives

MECHANICAL DATA

- Case: TO-263/D²PAK Molded plastic package
- Terminals: Lead solderable per MIL-STD-750, Method 2026
- Polarity: As marked
- Standard packaging: Any
- Weight: 0.0514 ounces, 1.46 grams.



MAXIMUM RATING (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	QRT2003DC	QRT2003ADC	QRT2004DC	UNIT
Maximum recurrent peak reverse voltage	V _{RRM}	300	350	400	V
Maximum rms voltage	V _{RMS}	210	245	280	V
Maximum dc blocking voltage	V _R	300	350	400	V
Maximum average forward rectified current	I _{F(AV)}	20 10			A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	120			A
Typical thermal resistance (Note 1)	R _{θJC}	3.5			°C/W
Operating junction temperature range	T _J	-55 to + 150			°C
Storage temperature range	T _{STG}	-55 to + 150			°C

Note : 1. Mounted on infinite heatsink.

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

QRT2003DC						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Breakdown voltage per diode	V _{BR}	I _R =0.5mA T _J =25°C	300	-	-	V
Instantaneous forward voltage per diode	V _F	I _F =1A T _J =25°C	-	0.88	-	V
		I _F =5A T _J =25°C	-	1.14	-	V
		I _F =10A T _J =25°C	-	1.3	1.35	V
		I _F =1A T _J =125°C	-	0.66	-	V
Reverse current per diode	I _R	I _F =5A T _J =125°C	-	0.93	-	V
		I _F =10A T _J =125°C	-	1.09	-	V
		V _R =240V T _J =25°C	-	0.04	-	μA
		V _R =300V T _J =25°C	-	-	1	μA
Reverse recovery time per diode	T _{RR}	V _R =300V T _J =125°C	-	5.4	-	μA
		I _F =0.5A I _R =1A I _{RR} =0.25A	-	24	30	ns
		I _F =1A V _R =30V di/dt=100A/μs	-	17	20	ns
		I _F =10A V _R =300V di/dt=200A/μs	-	20	-	ns
Peak recovery current per diode	I _{RRM}	I _F =10A V _R =300V di/dt=200A/μs	-	3.5	-	A
Reverse recovery charge per diode	Q _{RR}	I _F =10A V _R =300V di/dt=200A/μs	-	36	-	nC

QRT2003ADC						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Breakdown voltage per diode	V _{BR}	I _R =0.5mA T _J =25°C	350	-	-	V
Instantaneous forward voltage per diode	V _F	I _F =1A T _J =25°C	-	0.88	-	V
		I _F =5A T _J =25°C	-	1.14	-	V
		I _F =10A T _J =25°C	-	1.3	1.35	V
		I _F =1A T _J =125°C	-	0.66	-	V
Reverse current per diode	I _R	I _F =5A T _J =125°C	-	0.93	-	V
		I _F =10A T _J =125°C	-	1.09	-	V
		V _R =280V T _J =25°C	-	0.04	-	μA
		V _R =350V T _J =25°C	-	-	1	μA
Reverse recovery time per diode	T _{RR}	V _R =350V T _J =125°C	-	6.5	-	μA
		I _F =0.5A I _R =1A I _{RR} =0.25A	-	24	30	ns
		I _F =1A V _R =30V di/dt=100A/μs	-	17	20	ns
		I _F =10A V _R =350V di/dt=200A/μs	-	20	-	ns
Peak recovery current per diode	I _{RRM}	I _F =10A V _R =350V di/dt=200A/μs	-	3.5	-	A
Reverse recovery charge per diode	Q _{RR}	I _F =10A V _R =350V di/dt=200A/μs	-	36	-	nC



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PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Breakdown voltage per diode	V_{BR}	$I_R=0.5mA$ $T_J=25^{\circ}C$	400	-	-	V
Instantaneous forward voltage per diode	V_F	$I_F=1A$ $T_J=25^{\circ}C$	-	0.88	-	V
		$I_F=5A$ $T_J=25^{\circ}C$	-	1.14	-	V
		$I_F=10A$ $T_J=25^{\circ}C$	-	1.3	1.35	V
		$I_F=1A$ $T_J=125^{\circ}C$	-	0.66	-	V
		$I_F=5A$ $T_J=125^{\circ}C$	-	0.93	-	V
Reverse current per diode	I_R	$V_R=320V$ $T_J=25^{\circ}C$	-	0.05	-	μA
		$V_R=400V$ $T_J=25^{\circ}C$ $T_J=125^{\circ}C$	- -	- 9.2	1 -	μA
Reverse recovery time per diode	T_{RR}	$I_F=0.5A$ $I_R=1A$ $I_{RR}=0.25A$	-	24	30	ns
		$I_F=1A$ $V_R=30V$ $di/dt=100A/\mu s$	-	17	20	ns
		$I_F=10A$ $V_R=390V$ $di/dt=200A/\mu s$	-	20	-	ns
Peak recovery current per diode	I_{RRM}	$I_F=10A$ $V_R=390V$ $di/dt=200A/\mu s$	-	3.5	-	A
Reverse recovery charge per diode	Q_{RR}	$I_F=10A$ $V_R=390V$ $di/dt=200A/\mu s$	-	36	-	nC

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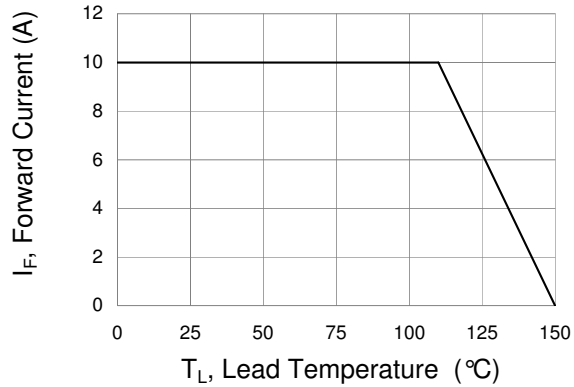


Fig.1 Forward Current Derating Curve

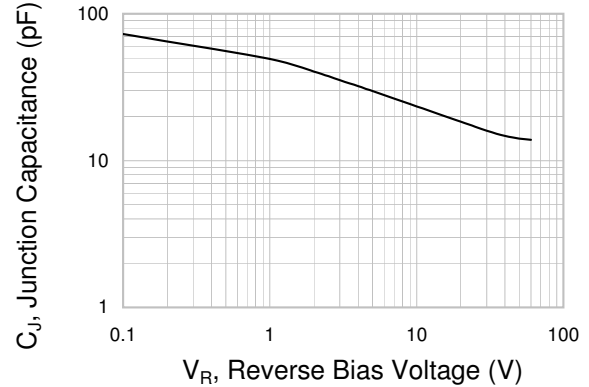


Fig.2 Typical Junction Capacitance

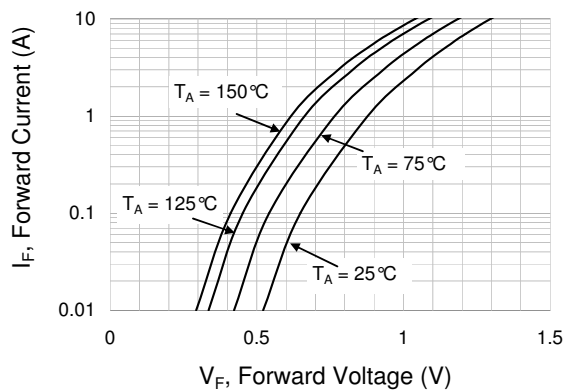


Fig.3 Typical Forward Characteristics

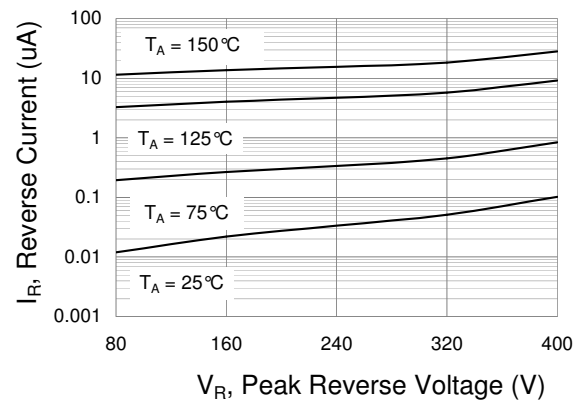
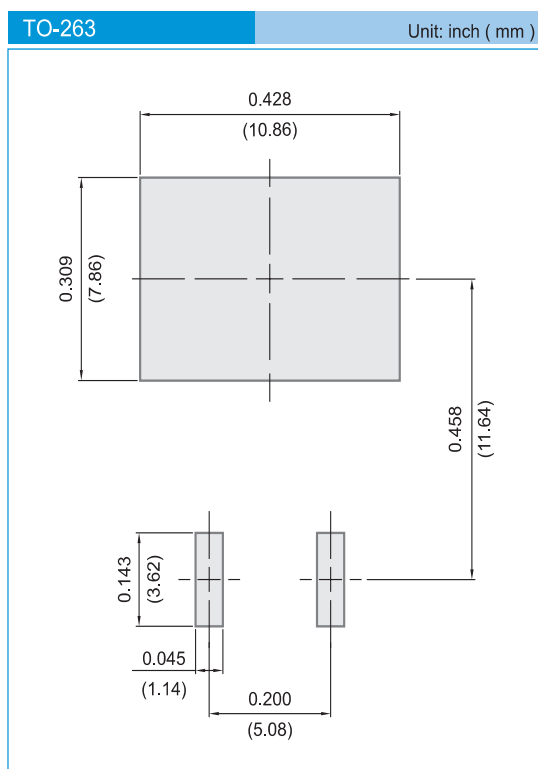


Fig.4 Typical Reverse Characteristics

QRT2003DC SERIES

MOUNTING PAD LAYOUT



ORDER INFORMATION

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

QRT2003DC SERIES

Part No_packing code_Version

QRT2003DC_R2_00001

QRT2003DC_R2_10001

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	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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