

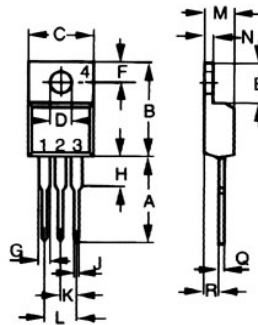
HUR20100CT, HUR20120CT

High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode



A=Anode, C=Cathode, TAB=Cathode

Dimensions TO-220AB



Dim.	Inches		Milimeter	
	Min.	Max.	Min.	Max.
A	0.500	0.550	12.70	13.97
B	0.580	0.630	14.73	16.00
C	0.390	0.420	9.91	10.66
D	0.139	0.161	3.54	4.08
E	0.230	0.270	5.85	6.85
F	0.100	0.125	2.54	3.18
G	0.045	0.065	1.15	1.65
H	0.110	0.230	2.79	5.84
J	0.025	0.040	0.64	1.01
K	0.100	BSC	2.54	BSC
M	0.170	0.190	4.32	4.82
N	0.045	0.055	1.14	1.39
Q	0.014	0.022	0.35	0.56
R	0.090	0.110	2.29	2.79

	V_{RSM}	V_{RRM}
	V	V
	1000	1000
HUR20100CT	1200	1200
HUR20120CT		

Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS} I_{FAVM}	$T_C=115^{\circ}C$; rectangular, $d=0.5$	35 2 x 10	A
I_{FSM}	$T_{VJ}=45^{\circ}C$; $t_p=10ms$ (50Hz), sine	40	A
E_{AS}	$T_{VJ}=25^{\circ}C$; non-repetitive; $I_{AS}=8A$; $L=180\mu H$	6.9	mJ
I_{AR}	$V_A=1.25 \cdot V_R$ typ.; $f=10kHz$; repetitive	0.8	A
T_{VJ} T_{VJM} T_{stg}		-55...+175 175 -55...+150	$^{\circ}C$
P_{tot}	$T_C=25^{\circ}C$	60	W
M_d	mounting torque	0.4...0.6	Nm
Weight	typical	2	g

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Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	T _{VJ} =25°C; V _R =V _{RRM} T _{VJ} =150°C; V _R =V _{RRM}		60	µA
			0.25	mA
V_F	I _F =10A; T _{VJ} =150°C T _{VJ} =25°C		1.96	V
			2.94	
R_{thJC} R_{thCH}		0.5	2.5	K/W
t_{rr}	I _F =1A; -di/dt=50A/µs; V _R =30V; T _{VJ} =25°C	40		ns
I_{RM}	V _R =100V; I _F =12A; -di _F /dt=100A/µs; T _{VJ} =100°C	4		A

FEATURES

- * International standard package
- * Planar passivated chips
- * Very short recovery time
- * Extremely low switching losses
- * Low I_{RM}-values
- * Soft recovery behaviour

APPLICATIONS

- * Antiparallel diode for high frequency switching devices
- * Antisaturation diode
- * Snubber diode
- * Free wheeling diode in converters and motor control circuits
- * Rectifiers in switch mode power supplies (SMPS)
- * Inductive heating
- * Uninterruptible power supplies (UPS)
- * Ultrasonic cleaners and welders

ADVANTAGES

- * Avalanche voltage rated for reliable operation
- * Soft reverse recovery for low EMI/RFI
- * Low I_{RM} reduces:
 - Power dissipation within the diode
 - Turn-on loss in the commutating switch

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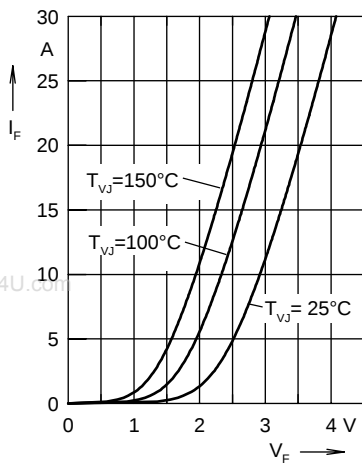


Fig. 1 Forward current I_F versus V_F

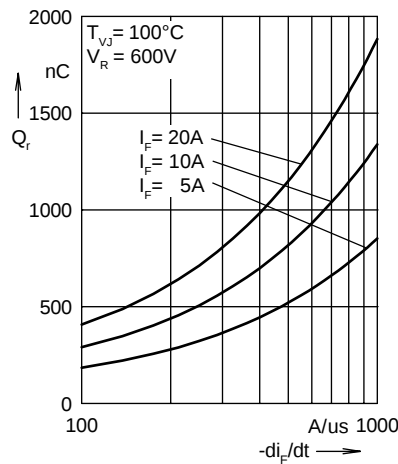


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

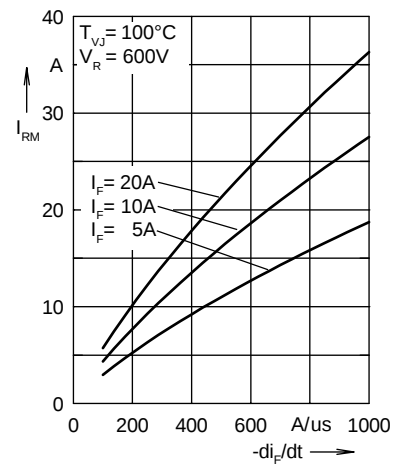


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

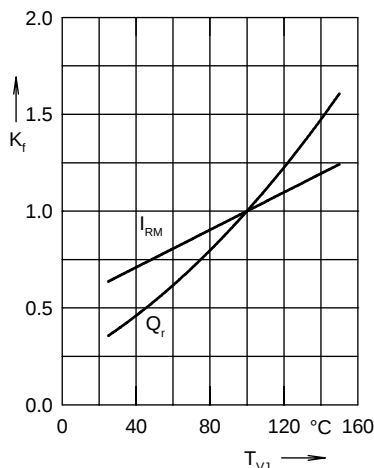


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

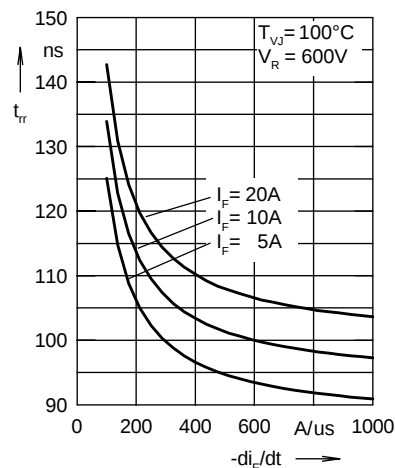


Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

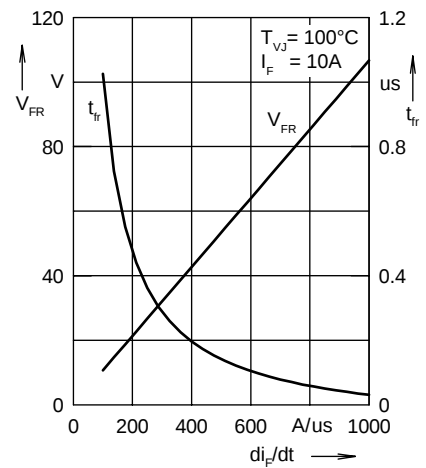


Fig. 6 Peak forward voltage V_{FR} and t_{rr} versus di_F/dt

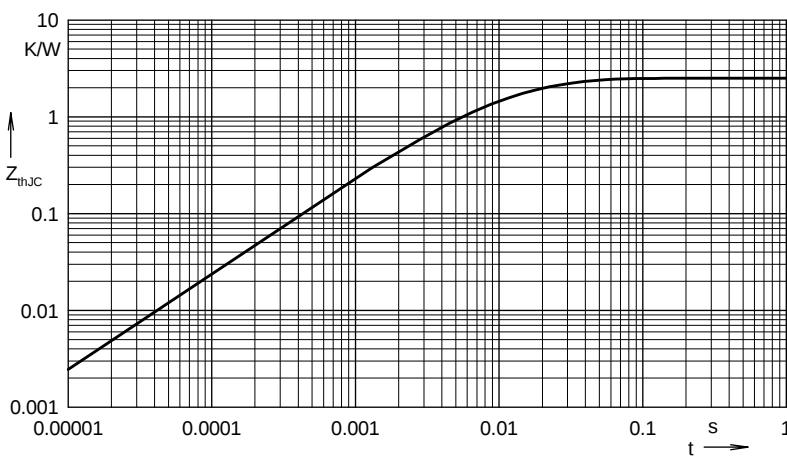


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	1.449	0.0052
2	0.558	0.0003
3	0.493	0.017

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