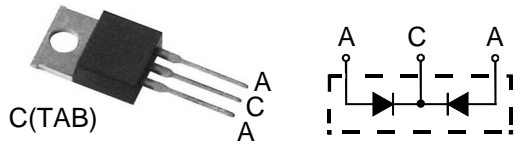


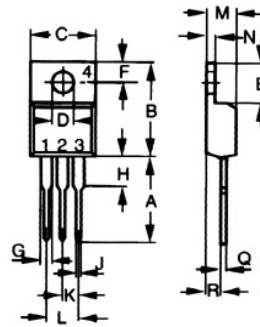
# HUR20100CT, HUR20120CT

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
<b>HUR20100CT</b>	1000	1000
<b>HUR20120CT</b>	1200	1200

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

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Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
<b>I<sub>R</sub></b>	T <sub>VJ</sub> =25°C; V <sub>R</sub> =V <sub>RRM</sub> T <sub>VJ</sub> =150°C; V <sub>R</sub> =V <sub>RRM</sub>		60	uA
			0.25	mA
<b>V<sub>F</sub></b>	I <sub>F</sub> =10A; T <sub>VJ</sub> =150°C T <sub>VJ</sub> =25°C		1.96	V
			2.94	
<b>R<sub>thJC</sub></b> <b>R<sub>thCH</sub></b>		0.5	2.5	K/W
<b>t<sub>rr</sub></b>	I <sub>F</sub> =1A; -di/dt=50A/us; V <sub>R</sub> =30V; T <sub>VJ</sub> =25°C	40		ns
<b>I<sub>RM</sub></b>	V <sub>R</sub> =100V; I <sub>F</sub> =12A; -di <sub>F</sub> /dt=100A/us; T <sub>VJ</sub> =100°C	4		A

## FEATURES

- \* International standard package
- \* Planar passivated chips
- \* Very short recovery time
- \* Extremely low switching losses
- \* Low I<sub>RM</sub>-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<sub>RM</sub> reduces:
  - Power dissipation within the diode
  - Turn-on loss in the commutating switch

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High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode

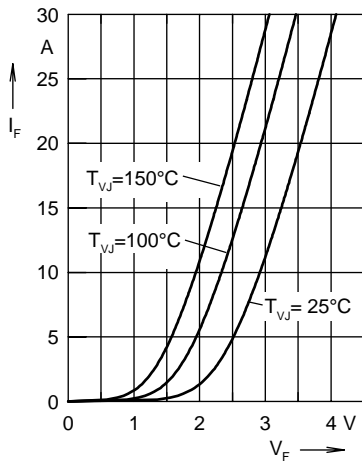


Fig. 1 Forward current  $I_F$  versus  $V_F$

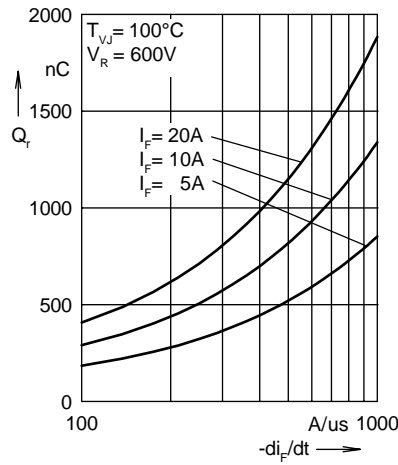


Fig. 2 Reverse recovery charge  $Q_r$  versus  $-di_F/dt$

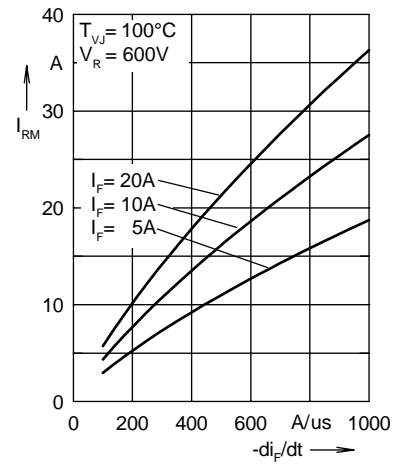


Fig. 3 Peak reverse current  $I_{RM}$  versus  $-di_F/dt$

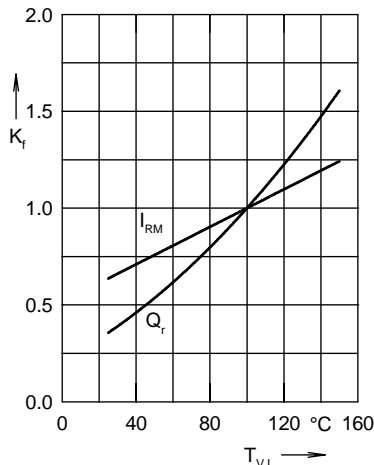


Fig. 4 Dynamic parameters  $Q_r$ ,  $I_{RM}$  versus  $T_{VJ}$

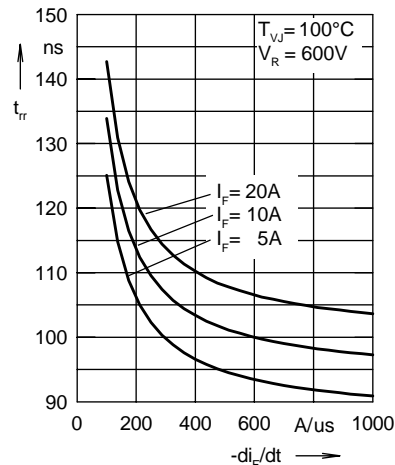


Fig. 5 Recovery time  $t_{tr}$  versus  $-di_F/dt$

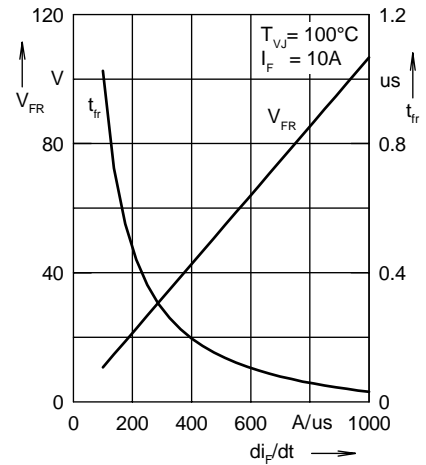


Fig. 6 Peak forward voltage  $V_{FR}$  and  $t_{tr}$  versus  $di_F/dt$

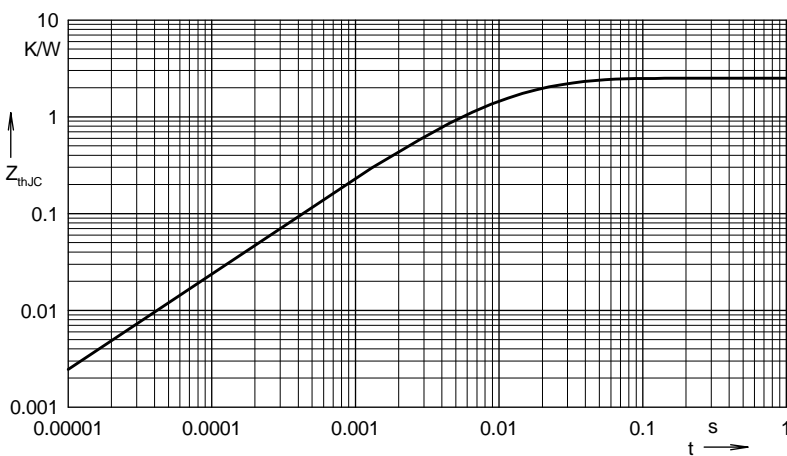


Fig. 7 Transient thermal resistance junction to case

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