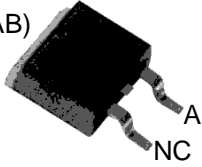


HUR3020CTS

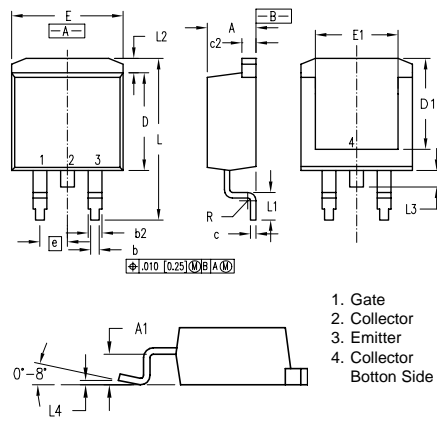
High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode

C(TAB)



A=Anode, NC= No connection, TAB=Cathode

Dimensions TO-263(D²PAK)



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.06	4.83	.160	.190
A1	2.03	2.79	.080	.110
b	0.51	0.99	.020	.039
b2	1.14	1.40	.045	.055
c	0.46	0.74	.018	.029
c2	1.14	1.40	.045	.055
D	8.64	9.65	.340	.380
D1	8.00	8.89	.315	.350
E	9.65	10.29	.380	.405
E1	6.22	8.13	.245	.320
e	2.54 BSC		.100 BSC	
L	14.61	15.88	.575	.625
L1	2.29	2.79	.090	.110
L2	1.02	1.40	.040	.055
L3	1.27	1.78	.050	.070
L4	0	0.20	0	.008
R	0.46	0.74	.018	.029

1. Gate
2. Collector
3. Emitter
4. Collector Bottom Side

	V _{RSM} V	V _{RRM} V
HUR3020CTS	200	200

Symbol	Test Conditions	Maximum Ratings	Unit
I _{FRMS} I _{FAVM}	T _C =135°C; rectangular, d=0.5	35 2 x 15	A
I _{FSM}	T _{VJ} =45°C; t _p =10ms (50Hz), sine	140	A
E _{AS}	T _{VJ} =25°C; non-repetitive; I _{AS} =2.5A; L=180uH	0.8	mJ
I _{AR}	V _A =1.5·V _R typ.; f=10kHz; repetitive	0.3	A
T _{VJ} T _{VJM} T _{stg}		-55...+175 175 -55...+150	°C
P _{tot}	T _C =25°C	95	W
M _d	mounting torque	0.4...0.6	Nm
Weight	typical	2	g

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High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode

Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	$T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$		100	uA
	$T_{VJ}=150^{\circ}\text{C}; V_R=V_{RRM}$		0.5	mA
V_F	$I_F=15\text{A}; T_{VJ}=150^{\circ}\text{C}$		1.21	V
	$T_{VJ}=25^{\circ}\text{C}$		1.68	
R_{thJC} R_{thCH}		0.5	1.6	K/W
t_{rr}	$I_F=1\text{A}; -di/dt=100\text{A/us}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$	30		ns
I_{RM}	$V_R=100\text{V}; I_F=25\text{A}; -di_F/dt=100\text{A/us}; T_{VJ}=100^{\circ}\text{C}$		2.7	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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High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode

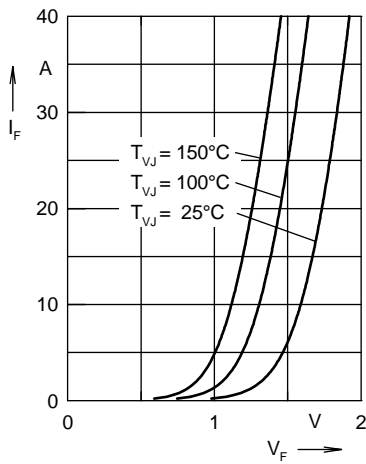


Fig. 1 Forward current I_F versus V_F

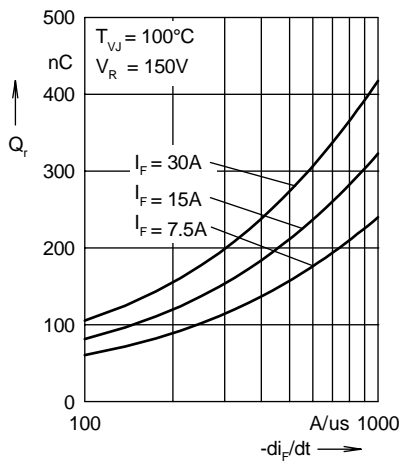


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

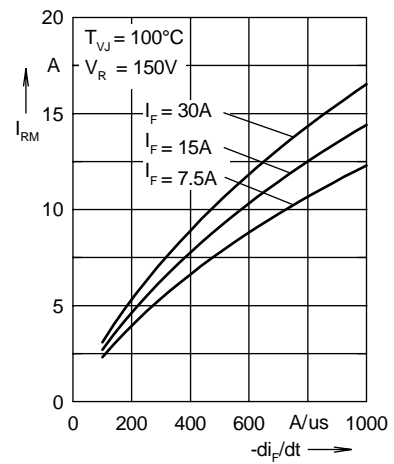


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

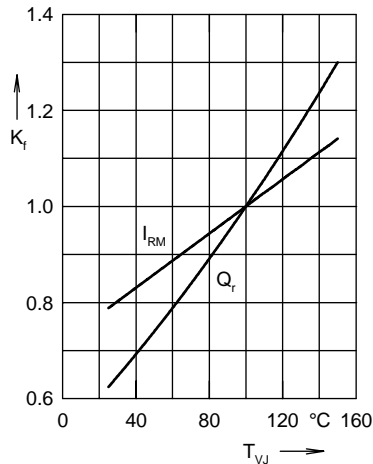


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

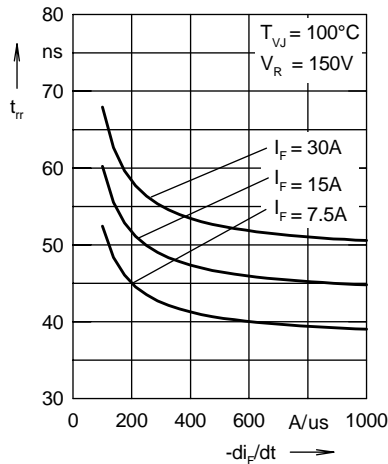


Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

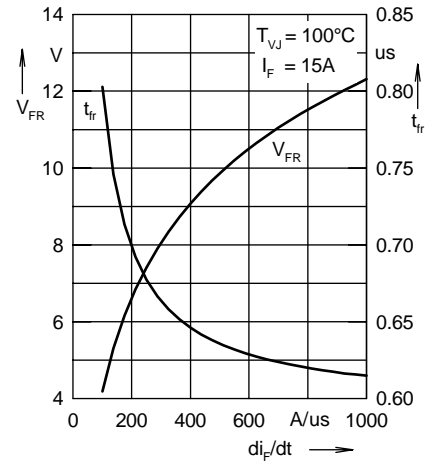


Fig. 6 Peak forward voltage V_{FR} and t_{rr} versus di_F/dt

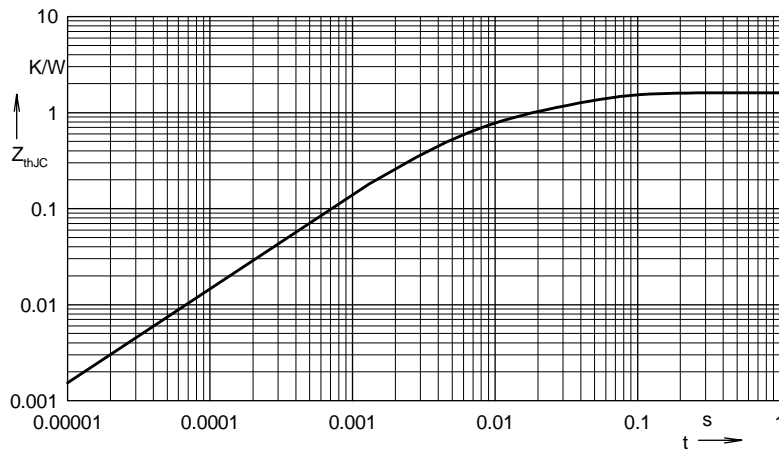


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.908	0.005
2	0.35	0.0003
3	0.342	0.017