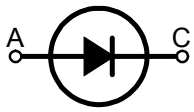
HUR1520, HUR1530, HUR1540

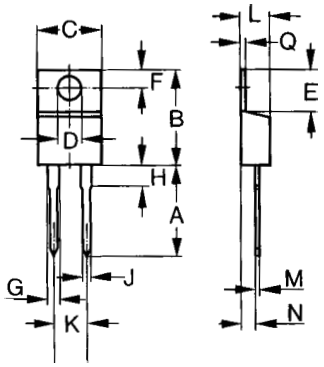
Soft Recovery Behaviour High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diodes



A=Anode, C=Cathode, TAB=Cathode

	V_{RSM} V	V_{RRM} V
HUR1520	200	200
HUR1530	300	300
HUR1540	400	400

Dimensions TO-220AC



Dim.	Inches Min.	Inches Max.	Milimeter Min.	Milimeter Max.
A	0.500	0.580	12.70	14.73
B	0.560	0.650	14.23	16.51
C	0.380	0.420	9.66	10.66
D	0.139	0.161	3.54	4.08
E	2.300	0.420	5.85	6.85
F	0.100	0.135	2.54	3.42
G	0.045	0.070	1.15	1.77
H	-	0.250	-	6.35
J	0.025	0.035	0.64	0.89
K	0.190	0.210	4.83	5.33
L	0.140	0.190	3.56	4.82
M	0.015	0.022	0.38	0.56
N	0.080	0.115	2.04	2.49
Q	0.025	0.055	0.64	1.39

Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS} I_{FAVM}	T_C=135°C; rectangular, d=0.5	35 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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Symbol	Test Conditions	Characteristic Values typ.	max.	Unit
I_R	T_{VJ}=25°C; V_R=V_{RRM} T_{VJ}=150°C; V_R=V_{RRM}		100 0.5	uA mA
V_F	I_F=15A; T_{VJ}=150°C T_{VJ}=25°C		1.21 1.68	V
R_{thJC} R_{thCH}		0.5	1.6	K/W
t_{rr}	I_F=1A; -di/dt=100A/us; V_R=30V; T_{VJ}=25°C	30		ns
I_{RM}	V_R=100V; I_F=25A; -di$_F$/dt=100A/us; T_{VJ}=100°C		2.7	A

FEATURES

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

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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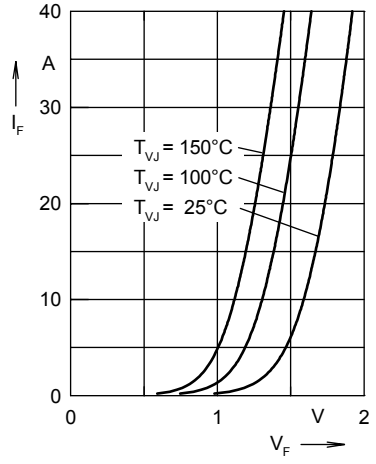

Fig. 1 Forward current I_F versus V_F

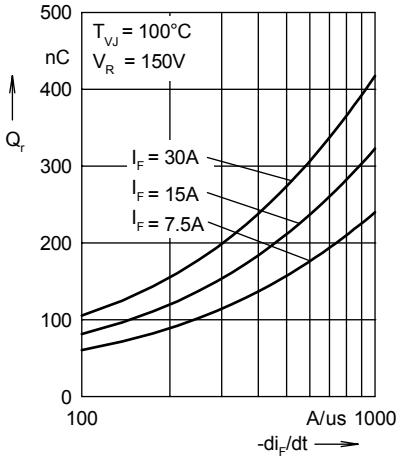

Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

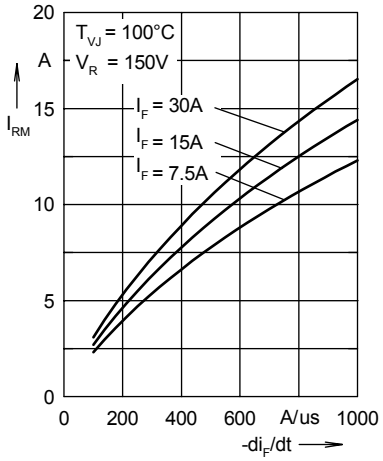

Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

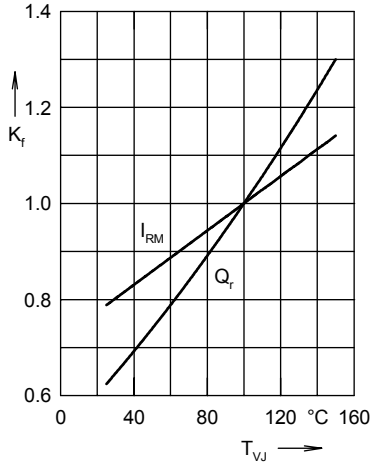

Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

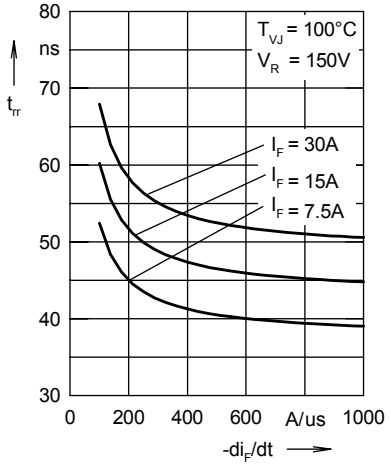

Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

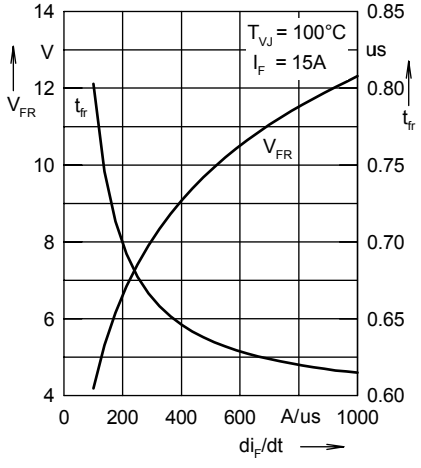

Fig. 6 Peak forward voltage V_{FR} and t_{fr} versus di_F/dt

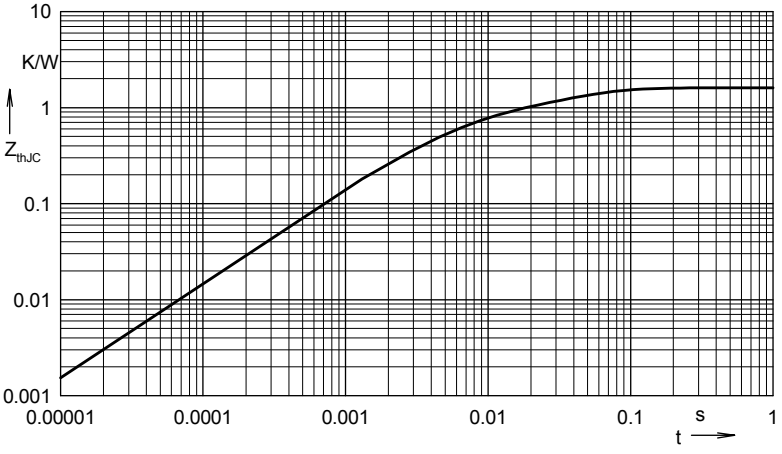

Fig. 7 Transient thermal resistance junction to case

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

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