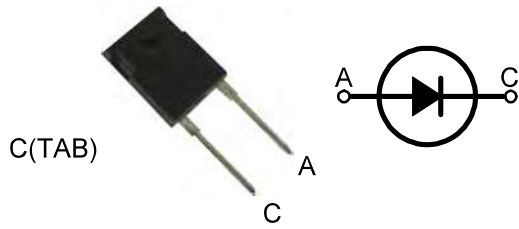


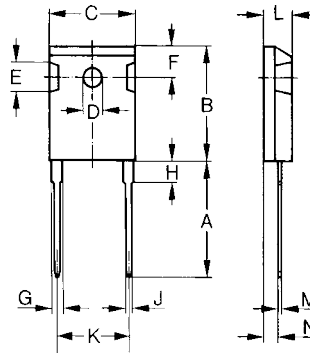
HUR30100, HUR30120

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



A=Anode, C=Cathode, TAB=Cathode

Dimensions TO-247AC



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

	V_{RSM}	V_{RRM}
	V	V
HUR30100	1000	1000
HUR30120	1200	1200

Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS}	$T_C=115^\circ\text{C}$; rectangular, $d=0.5$	70	A
I_{FAVM}		30	
I_{FSM}	$T_{VJ}=45^\circ\text{C}$; $t_p=10\text{ms}$ (50Hz), sine	200	A
E_{AS}	$T_{VJ}=25^\circ\text{C}$; non-repetitive; $I_{AS}=11.5\text{A}$; $L=180\mu\text{H}$	14	mJ
I_{AR}	$V_A=1.25 \cdot V_R$ typ.; $f=10\text{kHz}$; repetitive	1.2	A
T_{VJ}		-55...+175	$^\circ\text{C}$
T_{VJM}		175	
T_{stg}		-55...+150	
P_{tot}	$T_C=25^\circ\text{C}$	165	W
M_d	mounting torque	0.8...1.2	Nm
Weight	typical	6	g

HUR30100, HUR30120

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

Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	$T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$		250	μA
	$T_{VJ}=150^{\circ}\text{C}; V_R=V_{RRM}$		1	mA
V_F	$I_F=30\text{A}; T_{VJ}=150^{\circ}\text{C}$		1.78	V
	$T_{VJ}=25^{\circ}\text{C}$		2.74	
R_{thJC} R_{thCH}		0.25	0.9	K/W
t_{rr}	$I_F=1\text{A}; -di/dt=200\text{A}/\mu\text{s}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$	40		ns
I_{RM}	$V_R=100\text{V}; I_F=50\text{A}; -di_F/dt=100\text{A}/\mu\text{s}; T_{VJ}=100^{\circ}\text{C}$	5.5	11.4	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

HUR30100, HUR30120

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

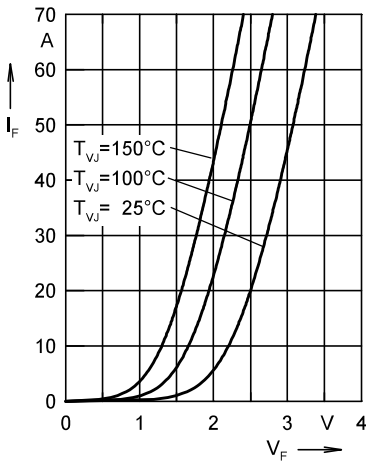


Fig. 1 Forward current I_F versus V_F

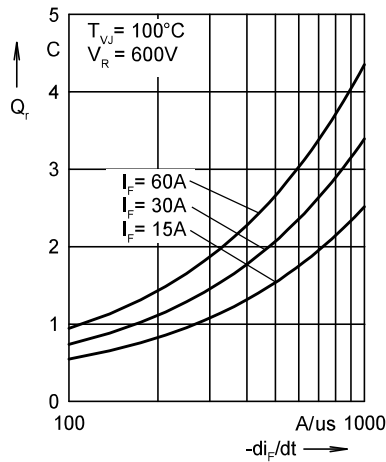


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

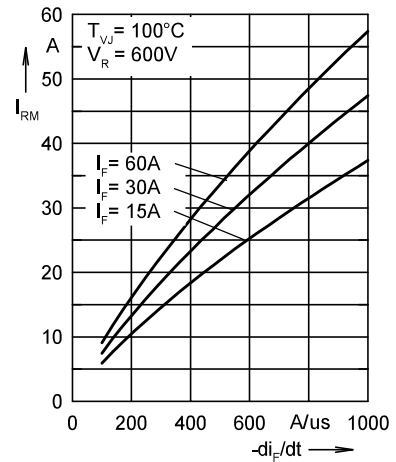


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

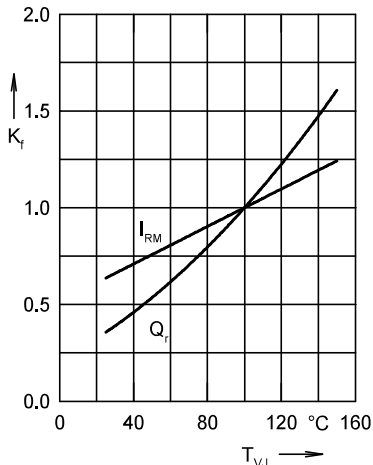


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

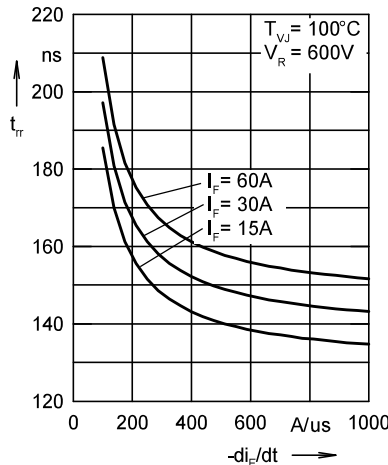


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

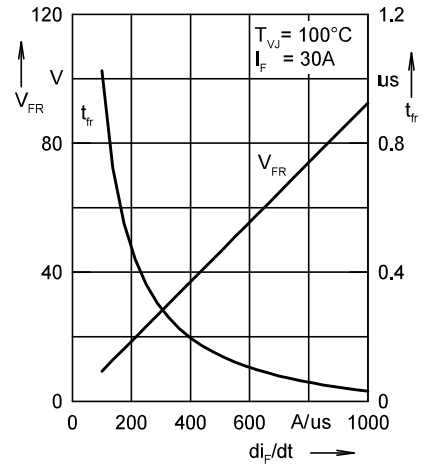


Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

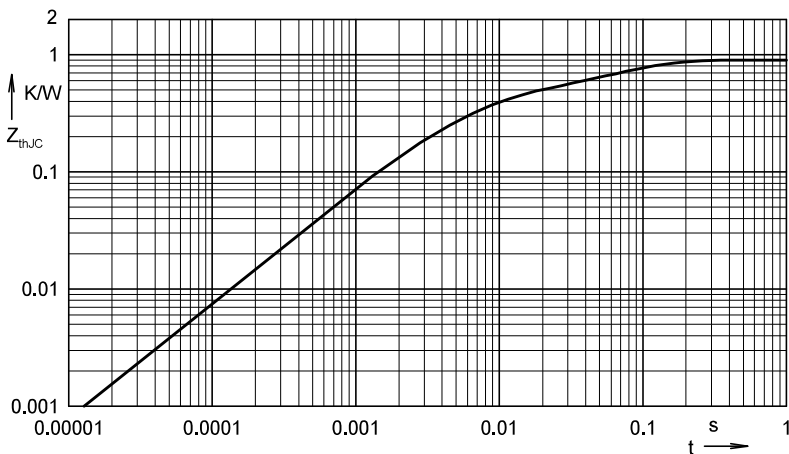


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation ..A:

i	R_{thi} (K/W)	t_i (s)
1	0.465	0.0052
2	0.179	0.0003
3	0.256	0.0397

Constants for Z_{thJC} calculation ..AR:

i	R_{thi} (K/W)	t_i (s)
1	0.368	0.0052
2	0.1417	0.0003
3	0.0295	0.0004
4	0.5604	0.0092