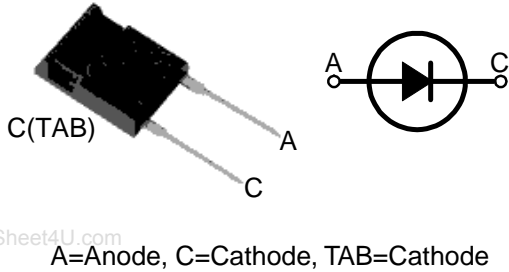
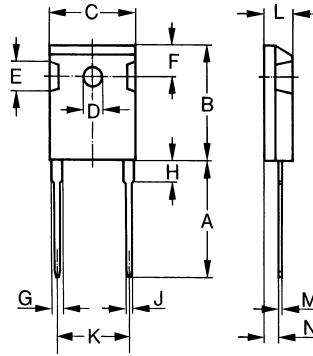


# HUR30100, HUR30120

High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode



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
<b>HUR30100</b>	1000	1000
<b>HUR30120</b>	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
<b>Weight</b>	typical	6	g

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# HUR30100, HUR30120

High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode

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>		250	uA
			1	mA
<b>V<sub>F</sub></b>	I <sub>F</sub> =30A; T <sub>VJ</sub> =150°C T <sub>VJ</sub> =25°C		1.78	V
			2.74	
<b>R<sub>thJC</sub></b> <b>R<sub>thCH</sub></b>		0.25	0.9	K/W
<b>t<sub>rr</sub></b>	I <sub>F</sub> =1A; -di/dt=200A/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> =50A; -di <sub>F</sub> /dt=100A/us; T <sub>VJ</sub> =100°C	5.5	11.4	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

**Sirectifier**®

# HUR30100, HUR30120

## High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode

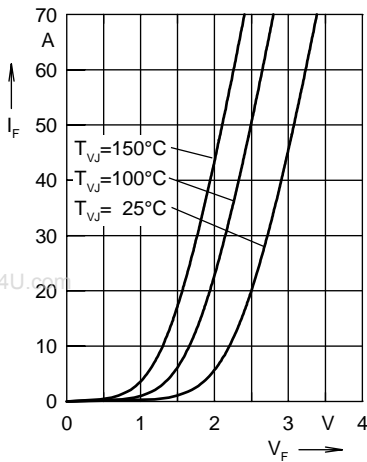


Fig. 1 Forward current  $I_F$  versus  $V_F$

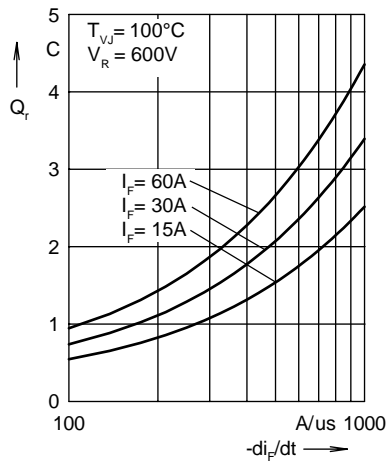


Fig. 2 Reverse recovery charge  $Q_r$  versus  $-di_F/dt$

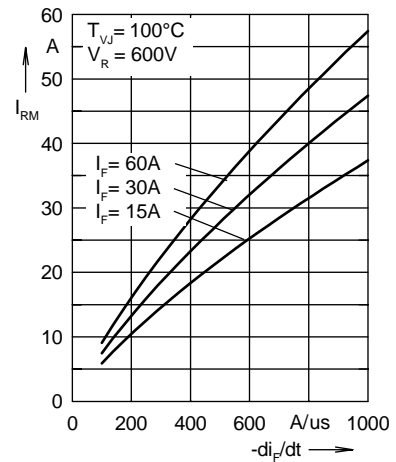


Fig. 3 Peak reverse current  $I_{RM}$  versus  $-di_F/dt$

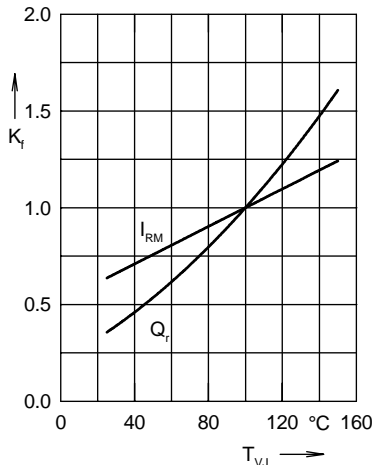


Fig. 4 Dynamic parameters  $Q_r$ ,  $I_{RM}$  versus  $T_{VJ}$

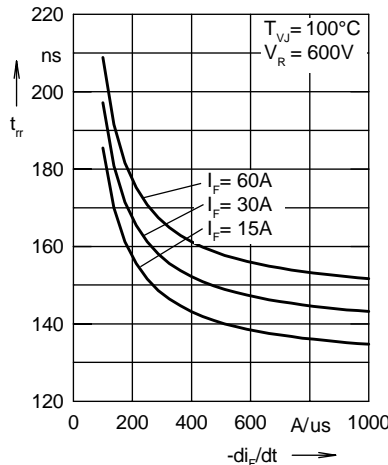


Fig. 5 Recovery time  $t_{tr}$  versus  $-di_F/dt$

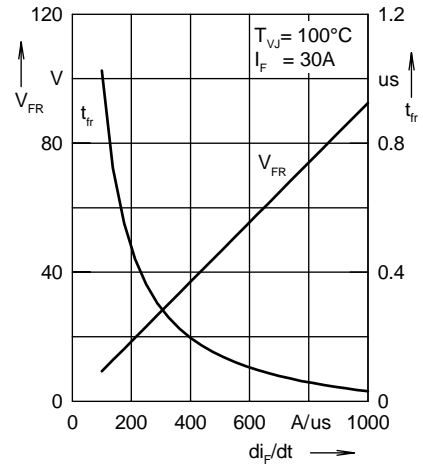


Fig. 6 Peak forward voltage  $V_{FR}$  and  $t_{tr}$  versus  $di_F/dt$

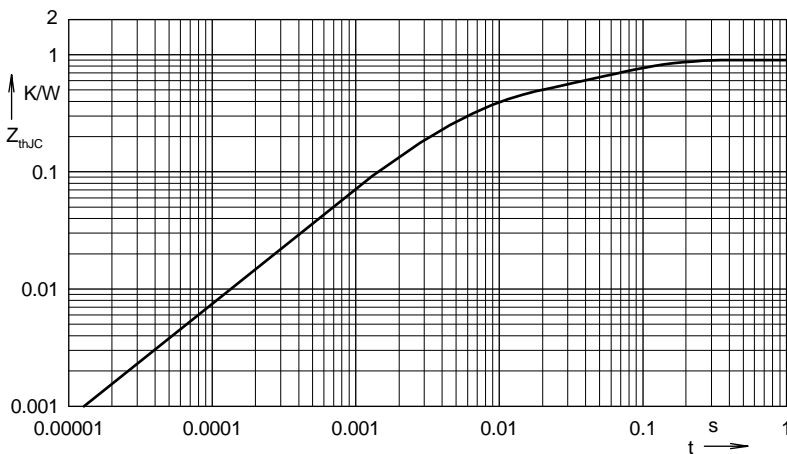


Fig. 7 Transient thermal resistance junction to case

Constants for  $Z_{thJC}$  calculation ..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

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