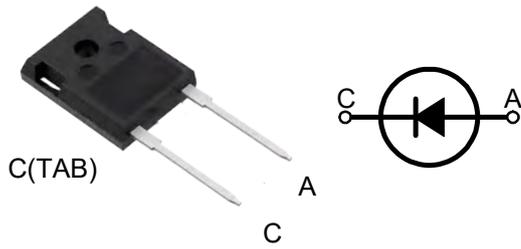


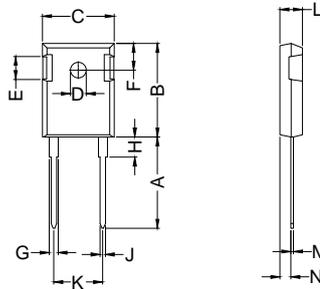
# HUR120120

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	0.620	0.640
ØD	3.15	3.65	0.124	0.144
E	4.32	5.49	0.170	0.216
F	5.40	6.30	0.213	0.248
G	1.65	2.13	0.065	0.084
H	3.80	4.50	0.150	0.177
J	1.00	1.40	0.039	0.055
K	10.80	11.10	0.425	0.437
L	4.70	5.30	0.185	0.209
M	0.40	0.80	0.016	0.031
N	1.50	2.49	0.059	0.098

	$V_{RSM}$ V	$V_{RRM}$ V
<b>HUR120120</b>	1200	1200



Symbol	Test Conditions	Maximum Ratings	Unit
$I_{FRMS}$	$T_{VJ}=T_{VJM}$	100	A
$I_{FAVM}$	$T_C=60^\circ\text{C}$ ; rectangular, $d=0.5$	120	
$I_{FRM}$	$t_p < 10\mu\text{s}$ ; rep. rating, pulse width limited by $T_{VJM}$	tbd	
$I_{FSM}$	$T_{VJ}=45^\circ\text{C}$ $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine	600 660	A
	$T_{VJ}=150^\circ\text{C}$ $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine	540 600	
$I^2t$	$T_{VJ}=45^\circ\text{C}$ $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine	1800 1800	$\text{A}^2\text{s}$
	$T_{VJ}=150^\circ\text{C}$ $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine	1450 1500	
$T_{VJ}$ $T_{VJM}$ $T_{stg}$		-40...+150 150 -40...+150	$^\circ\text{C}$
$P_{tot}$	$T_C=25^\circ\text{C}$	357	W
$M_d$	Mounting torque	0.8...1.2	Nm
Weight		6	g

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Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I <sub>R</sub>	T <sub>VJ</sub> =25°C; V <sub>R</sub> =V <sub>RRM</sub>		3	uA
	T <sub>VJ</sub> =25°C; V <sub>R</sub> =0.8·V <sub>RRM</sub>		1.5	uA
	T <sub>VJ</sub> =125°C; V <sub>R</sub> =0.8·V <sub>RRM</sub>		20	mA
V <sub>F</sub>	I <sub>F</sub> =70A; T <sub>VJ</sub> =150°C		1.55	V
	T <sub>VJ</sub> =25°C		1.8	
V <sub>TO</sub>	For power-loss calculations only		1.2	V
r <sub>T</sub>	T <sub>VJ</sub> =T <sub>VJM</sub>		4.6	mΩ
R <sub>thJC</sub> R <sub>thCK</sub> R <sub>thJA</sub>		0.25	0.35	K/W
			35	
t <sub>tr</sub>	I <sub>F</sub> =1A; -di/dt=200A/us; V <sub>R</sub> =30V; T <sub>VJ</sub> =25°C	40	60	ns
I <sub>RM</sub>	V <sub>R</sub> =350V; I <sub>F</sub> =75A; -di <sub>F</sub> /dt=200A/us; L≤0.05uH; T <sub>VJ</sub> =100°C	25	30	A

## FEATURES

- \* International standard package TO-247AC
- \* Planar passivated chips
- \* Very short recovery time
- \* Extremely low switching losses
- \* Low I<sub>RM</sub>-values
- \* Soft recovery behaviour
- \* RoHS compliant

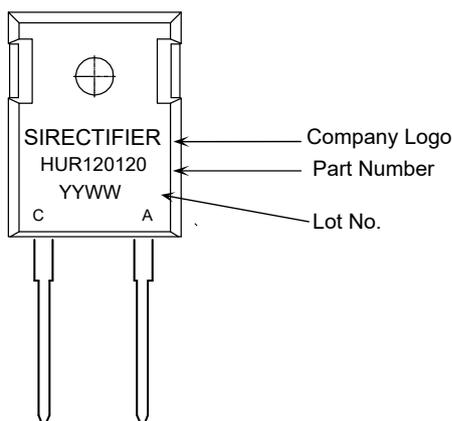
## APPLICATIONS

- \* 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 and melting
- \* Uninterruptible power supplies (UPS)
- \* Ultrasonic cleaners and welders

## ADVANTAGES

- \* High reliability circuit operation
- \* Low voltage peaks for reduced protection circuits
- \* Low noise switching
- \* Low losses
- \* Operating at lower temperature or space saving by reduced cooling

## MARKING



## ORDERING INFORMATION

Part Number	Package	Shipping	Marking Code
HUR120120	TO-247AC	30pcs / Tube	HUR120120

**Sirectifier®**

# HUR120120

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

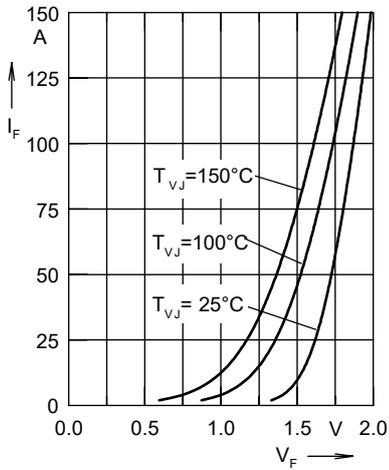


Fig. 1 Forward current  $I_F$  versus  $V_F$

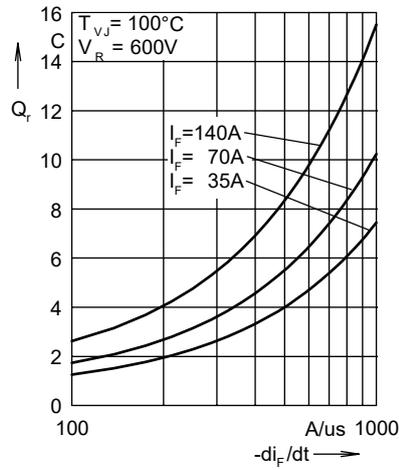


Fig. 2 Reverse recovery charge  $Q_r$  versus  $-di_F/dt$

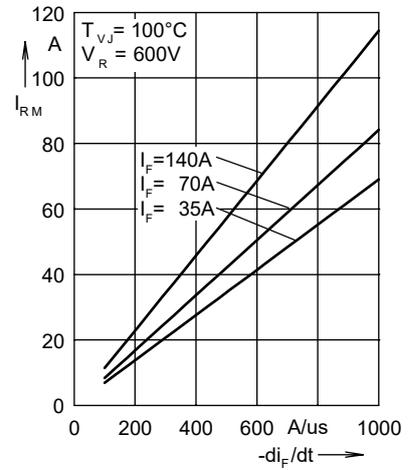


Fig. 3 Peak reverse current  $I_{RM}$  versus  $-di_F/dt$

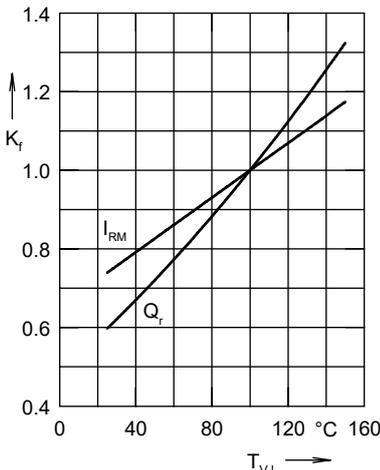


Fig. 4 Dynamic parameters  $Q_r$ ,  $I_{RM}$  versus  $T_{VJ}$

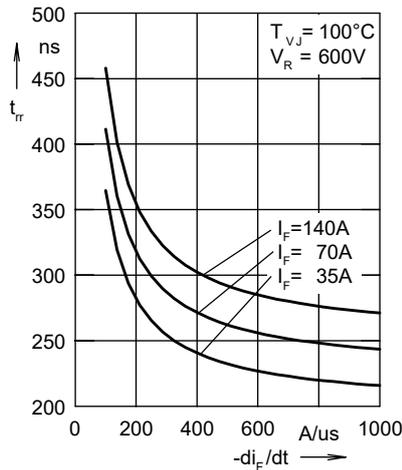


Fig. 5 Recovery time  $t_{tr}$  versus  $-di_F/dt$

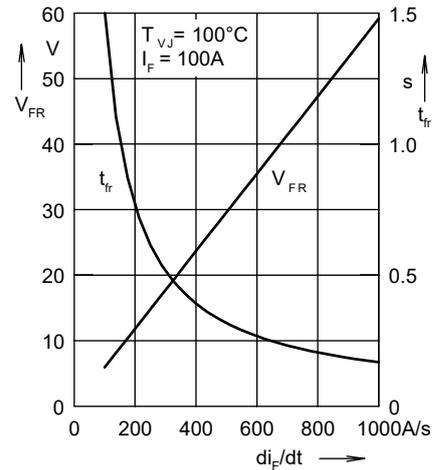


Fig. 6 Peak forward voltage  $V_{FR}$  and  $t_{tr}$  versus  $di_F/dt$

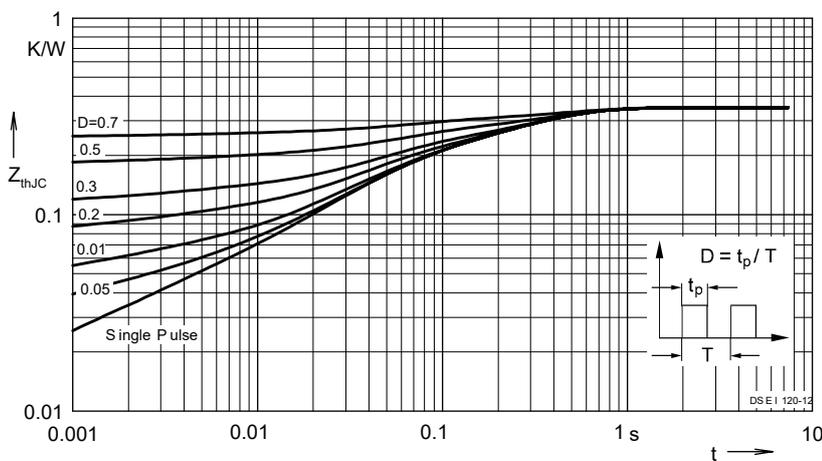


Fig. 7 T transient thermal resistance junction to case

Constants for  $Z_{thJC}$  calculation:

i	$R_{thi}(K/W)$	$t_i$ (s)
1	0.017	0.00038
2	0.0184	0.0026
3	0.1296	0.0387
4	0.185	0.274