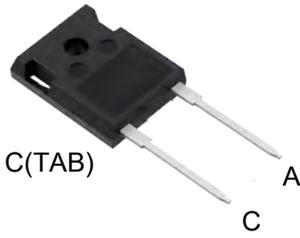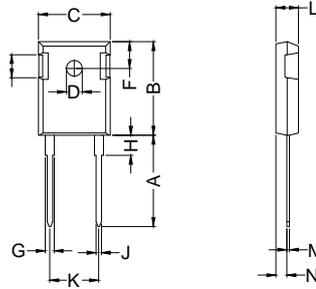# HUR40120

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

C(TAB)

A

C

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
HUR40120	1200	1200

RoHS Compliant

Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS} I_{FAVM}	T_C=115°C; rectangular, d=0.5	70 40	A
I_{FSM}	T_{VJ}=45°C; t_P=10ms (50Hz), sine	220	A
E_{AS}	T_{VJ}=25°C; non-repetitive; I_{AS}=1.5A; L=180uH	20	mJ
I_{AR}	V_A=1.25$\cdot V_R$ typ.; f=10kHz; repetitive	1.5	A
T_{VJ} T_{VJM} T_{stg}		-55...+175 175 -55...+150	^{o}C
P_{tot}	T_C=25°C	170	W
M_d	mounting torque	0.8...1.2	Nm
Weight	typical	6	g

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HUR40120

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

Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	$T_{VJ}=25^oC$; $V_R=V_{RRM}$ $T_{VJ}=150^oC$; $V_R=V_{RRM}$		250 1	uA mA
V_F	$I_F=40A$; $T_{VJ}=150^oC$ $T_{VJ}=25^oC$		1.78 2.74	V
R_{thJC} R_{thCH}		0.23	0.85	K/W
t_{rr}	$I_F=1A$; -di/dt=200A/us; $V_R=30V$; $T_{VJ}=25^oC$	26		ns
I_{RM}	$V_R=100V$; $I_F=40A$; -di$_F$/dt=100A/us; $T_{VJ}=100^oC$	5.7	11.9	A

FEATURES

* International standard package
* Planar 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

MARKING

SIRECTIFIER — Company Logo
HUR40120 — Part Number
YYWW
K   A — Lot No.
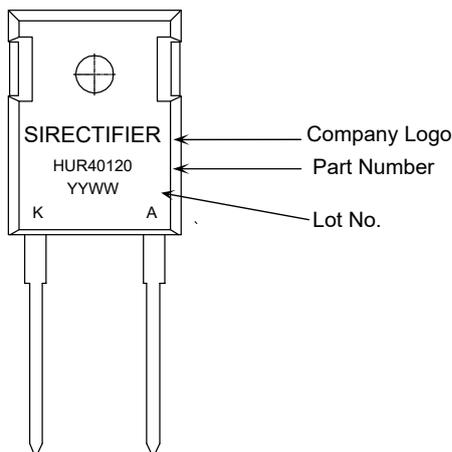
ORDERING INFORMATION

Part Number	Package	Shipping	Marking Code
HUR40120	TO-247AC	30pcs / Tube	HUR40120

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Soft Recovery Behaviour High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diodes
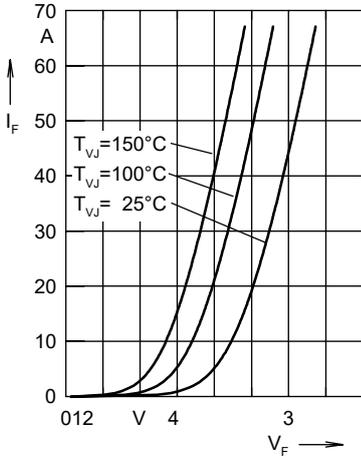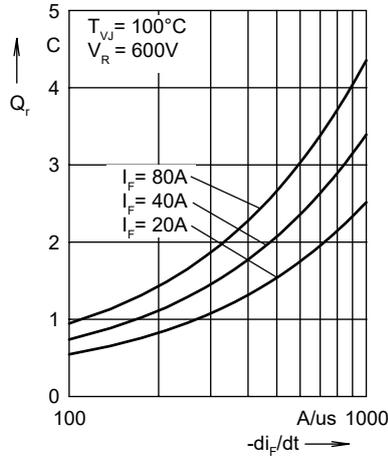
Fig. 1 Forward current I_F versus V_F

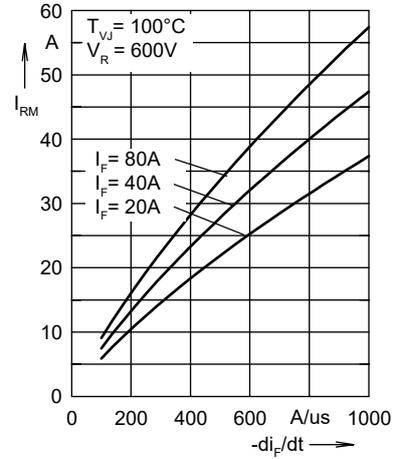Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

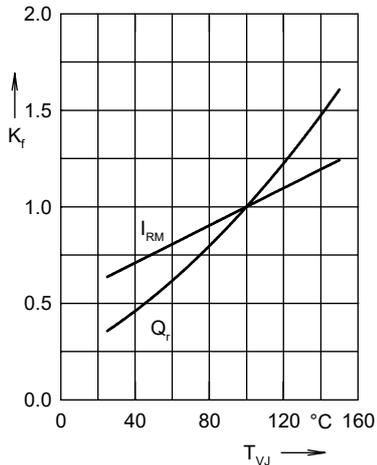Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$
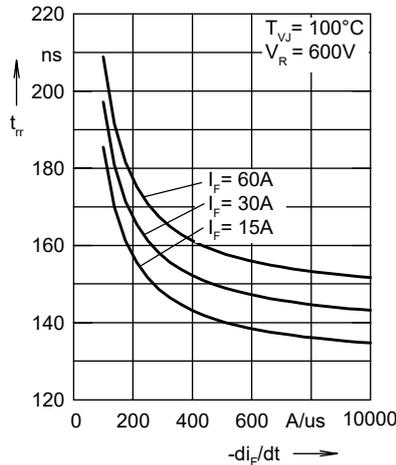
Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

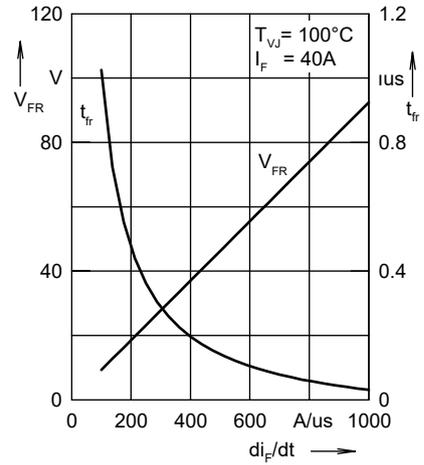Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

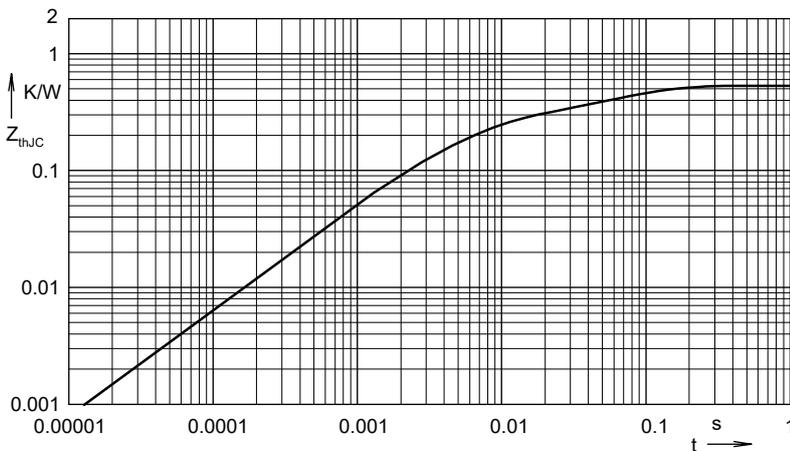Fig. 6 Peak forward voltage V_{FR} and t_{fr} versus di_F/dt

Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation ..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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