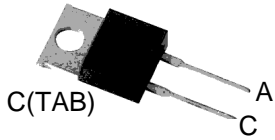


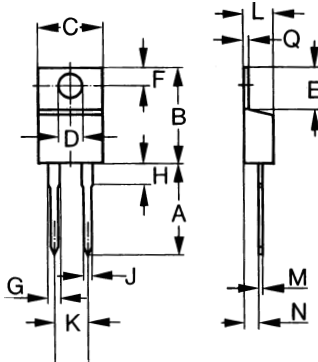
# HUR830

High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode



A=Anode, C=Cathode, TAB=Cathode

Dimensions TO-220AC



Dim.	Inches		Milimeter	
	Min.	Max.	Min.	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

	$V_{RSM}$ V	$V_{RRM}$ V
<b>HUR830</b>	300	300

Symbol	Test Conditions	Maximum Ratings	Unit
$I_{FRMS}$ $I_{FAVM}$	$T_C=130^{\circ}C$ ; rectangular, $d=0.5$	35 10	A
$I_{FSM}$	$T_{VJ}=45^{\circ}C$ ; $t_p=10ms$ (50Hz), sine	60	A
$E_{AS}$	$T_{VJ}=25^{\circ}C$ ; non-repetitive; $I_{AS}=2A$ ; $L=180\mu H$	0.5	mJ
$I_{AR}$	$V_A=1.5 \cdot V_R$ typ.; $f=10kHz$ ; repetitive	0.2	A
$T_{VJ}$ $T_{VJM}$ $T_{stg}$		-55...+175 175 -55...+150	$^{\circ}C$
$P_{tot}$	$T_C=25^{\circ}C$	60	W
$M_d$	mounting torque	0.4...0.6	Nm
<b>Weight</b>	typical	2	g

# HUR830

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>		60	uA
			0.25	mA
<b>V<sub>F</sub></b>	I <sub>F</sub> =10A; T <sub>VJ</sub> =150°C T <sub>VJ</sub> =25°C		1.29	V
			1.75	
<b>R<sub>thJC</sub></b> <b>R<sub>thCH</sub></b>		0.5	2.5	K/W
<b>t<sub>rr</sub></b>	I <sub>F</sub> =1A; -di/dt=50A/us; V <sub>R</sub> =30V; T <sub>VJ</sub> =25°C		30	
<b>I<sub>RM</sub></b>	V <sub>R</sub> =100V; I <sub>F</sub> =12A; -di <sub>F</sub> /dt=100A/us; T <sub>VJ</sub> =100°C		2.4	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**®

# HUR830

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

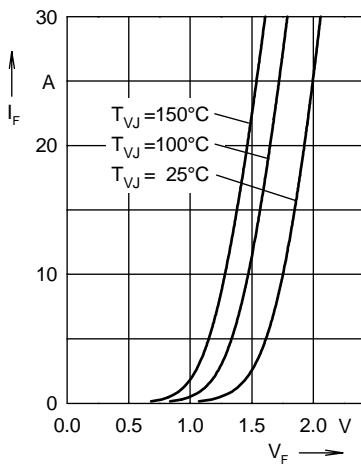


Fig. 1 Forward current  $I_F$  versus  $V_F$

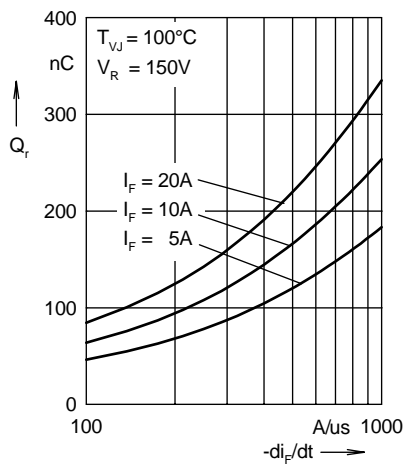


Fig. 2 Reverse recovery charge  $Q_r$  versus  $-di_F/dt$

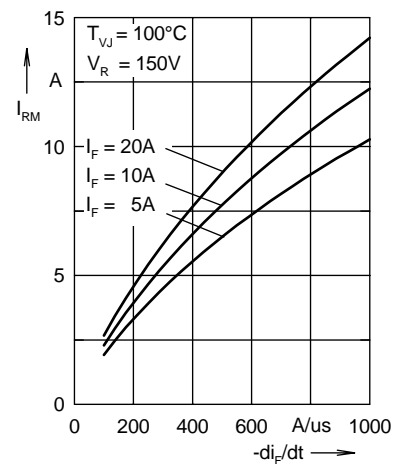


Fig. 3 Peak reverse current  $I_{RM}$  versus  $-di_F/dt$

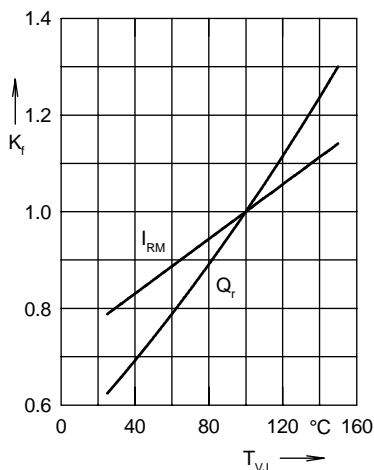


Fig. 4 Dynamic parameters  $Q_r$ ,  $I_{RM}$  versus  $T_{VJ}$

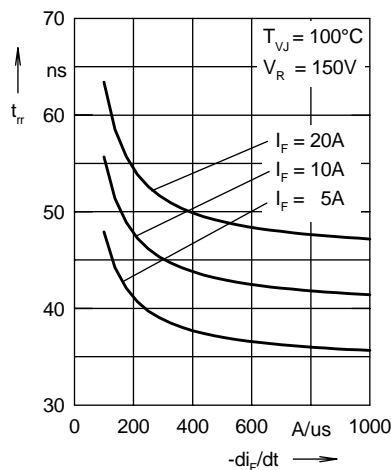


Fig. 5 Recovery time  $t_{tr}$  versus  $-di_F/dt$

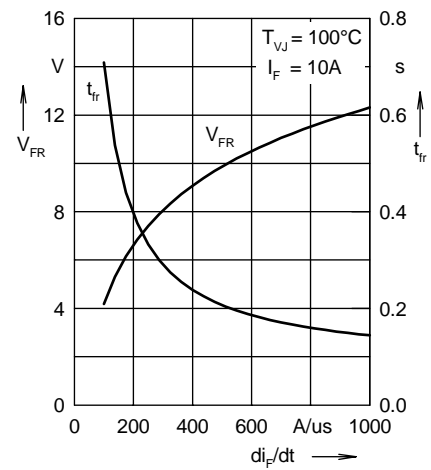


Fig. 6 Peak forward voltage  $V_{FR}$  and  $t_{tr}$  versus  $di_F/dt$

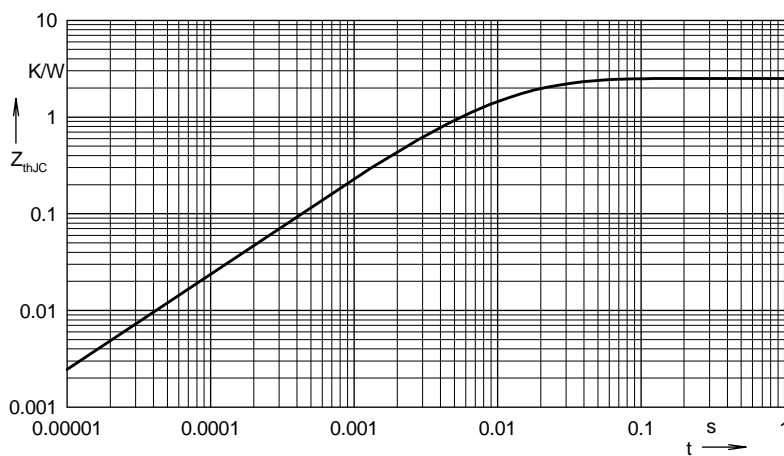


Fig. 7 Transient thermal resistance junction to case

Constants for  $Z_{thJC}$  calculation:

i	$R_{thi}$ (K/W)	$t_i$ (s)
1	1.449	0.005
2	0.558	0.0003
3	0.493	0.017