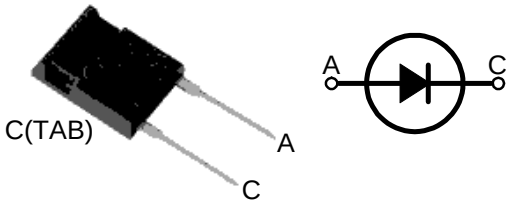
MUR3020, MUR3030

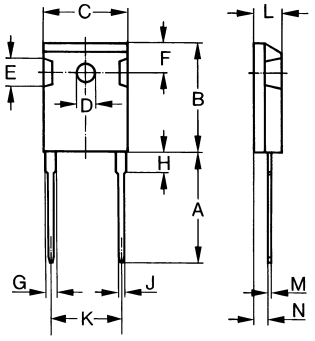
Ultra Fast Recovery Diodes



A=Anode, C=Cathode, TAB=Cathode

	V_{RSM}	V_{RRM}
	V	V
MUR3020	200	200
MUR3030	300	300

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

Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS} I_{FAVM}	T_C=145°C; rectangular, d=0.5	70 30	A
I_{FSM}	T_{VJ}=45°C; t_p=10ms (50Hz), sine	300	A
E_{AS}	T_{VJ}=25°C; non-repetitive; I_{AS}=3A; L=180uH	1.2	mJ
I_{AR}	V_A=1.5·V_R typ.; f=10kHz; repetitive	0.3	A
T_{VJ} T_{VJM} T_{stg}		-55...+175 175 -55...+150	°C
P_{tot}	T_C=25°C	165	W
M_d	mounting torque	0.8...1.2	Nm
Weight	typical	6	g

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Ultra Fast Recovery Diodes

Symbol	Test Conditions	Characteristic Values typ.	max.	Unit
I_R	T_{VJ}=25°C; V_R=V_{RRM} T_{VJ}=150°C; V_R=V_{RRM}		250 1	uA mA
V_F	I_F=30A; T_{VJ}=150°C T_{VJ}=25°C		0.91 1.25	V
R_{thJC} R_{thCH}		0.25	0.9	K/W
t_{rr}	I_F=1A; -di/dt=200A/us; V_R=30V; T_{VJ}=25°C	30		ns
I_{RM}	V_R=100V; I_F=50A; -di_F/dt=100A/us; T_{VJ}=100°C		7	A

FEATURES

* International standard package
* Planar passivated chips
* Very short recovery time
* Extremely low switching losses
* Low I_{RM}-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_{RM} reduces:
  - Power dissipation within the diode
  - Turn-on loss in the commutating switch

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Ultra Fast Recovery Diodes

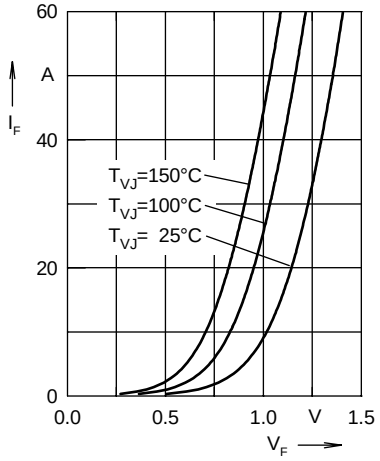


Fig. 1 Forward current I_F versus V_F

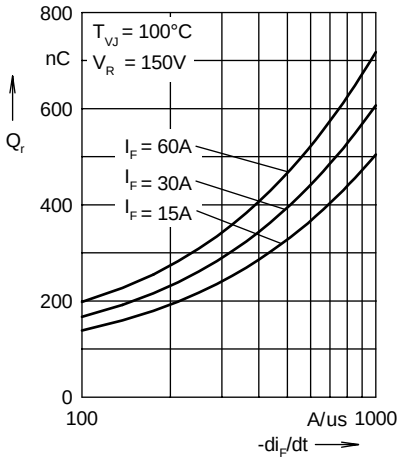


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

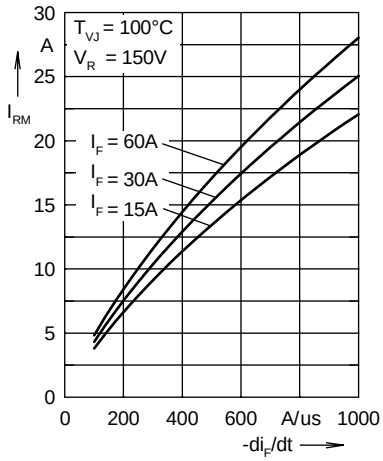


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

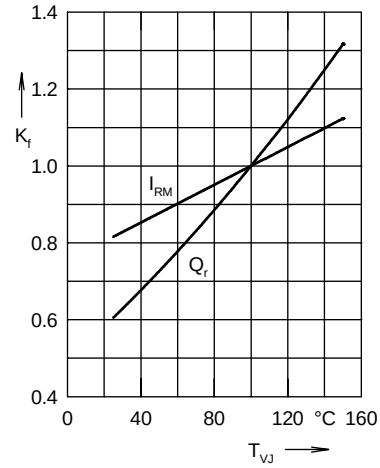


Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

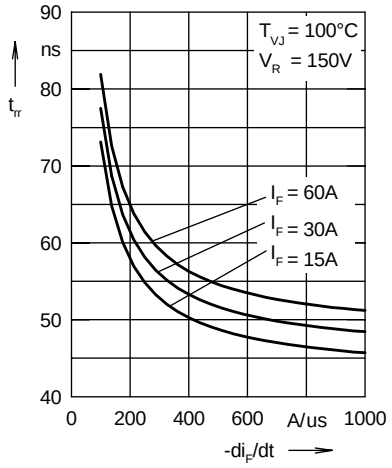


Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

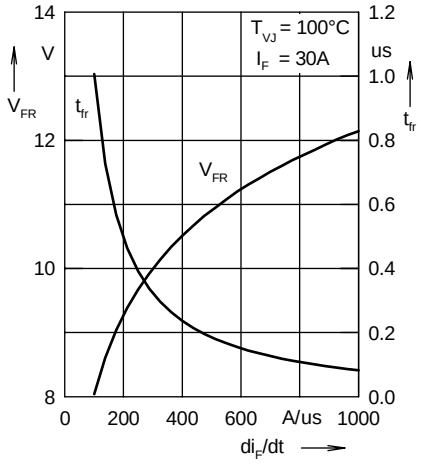


Fig. 6 Peak forward voltage V_{FR} and t_{fr} versus di_F/dt

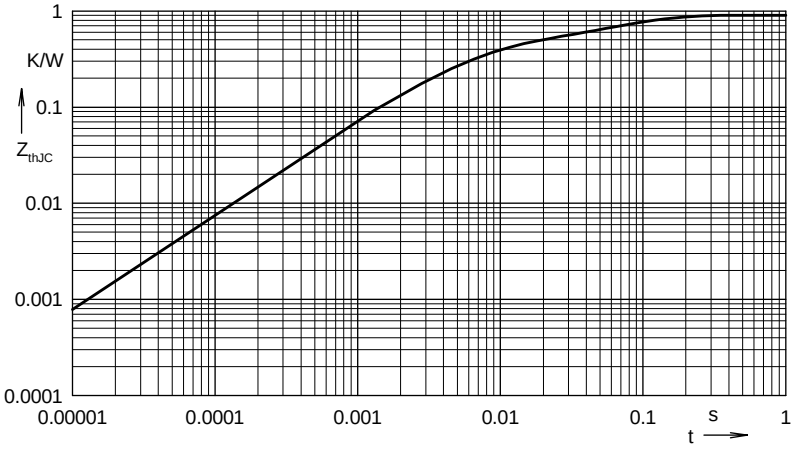


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.465	0.005
2	0.179	0.0003
3	0.256	0.04

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