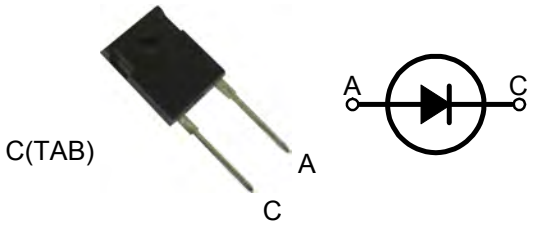
MUR120120

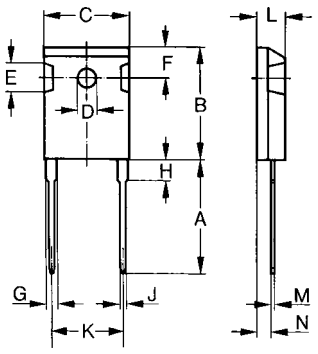
Ultra Fast Recovery Diodes



A=Anode, C=Cathode, TAB=Cathode

	V_{RSM}	V_{RRM}
	V	V
MUR120120	1200	1200

Dimensions TO-247AC



Dim.	Millimeter Min.	Max.	Inches 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} I_{FAV} I_{FRM}	$T_{VJ}=T_{VJM}$ $T_C=60^oC$; rectangular, d=0.5 $T_C=95^oC$; rectangular, d=0.5 $t_p<10us$; rep. rating, pulse width limited by T_{VJM}		100 109 75 tbd	A
I_{FSM}	$T_{VJ}=45^oC$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	600 660	A
	$T_{VJ}=150^oC$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	540 600	
I^2t	$T_{VJ}=45^oC$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	1800 1800	A^2s
	$T_{VJ}=150^oC$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	1450 1500	
T_{VJ} T_{VJM} T_{stg}			-40...+150 150 -40...+150	^oC
P_{tot}	$T_C=25^oC$		357	W
M_d	Mounting torque		0.8...1.2	Nm
Weight	typical		6	g

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Symbol	Test Conditions	Characteristic Values typ.	max.	Unit
I_R	T_{VJ}=25°C; V_R=V_{RRM} T_{VJ}=25°C; V_R=0.8·V_{RRM} T_{VJ}=125°C; V_R=0.8·V_{RRM}		3 1.5 20	mA
V_F	I_F=70A; T_{VJ}=150°C T_{VJ}=25°C		1.55 1.8	V
V_{TO}	For power-loss calculations only		1.2	V
r_T	T_{VJ}=T_{VJM}		4.6	mΩ
R_{thJC} R_{thCK} R_{thJA}		0.25	0.35 35	K/W
t_{rr}	I_F=1A; -di/dt=200A/us; V_R=30V; T_{VJ}=25°C	40	60	ns
I_{RM}	V_R=350V; I_F=75A; -di$_F$/dt=200A/us; L≤0.05uH; T_{VJ}=100°C	25	30	A

FEATURES

* International standard package JEDEC TO-247AC
* Glass passivatd 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 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

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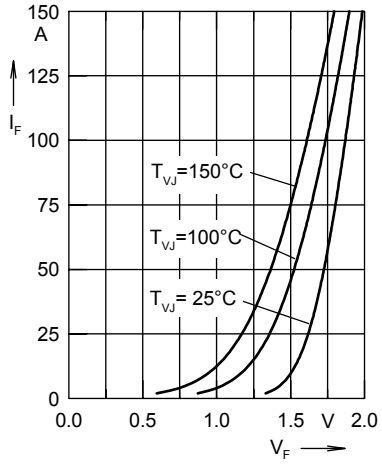

Fig. 1 Forward current I_F versus V_F

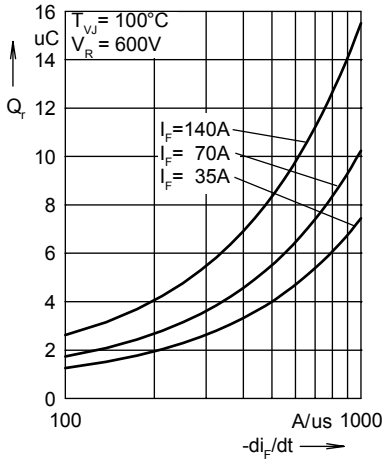

Fig. 2 Reverse recovery charge Q_r versus -di_F/dt

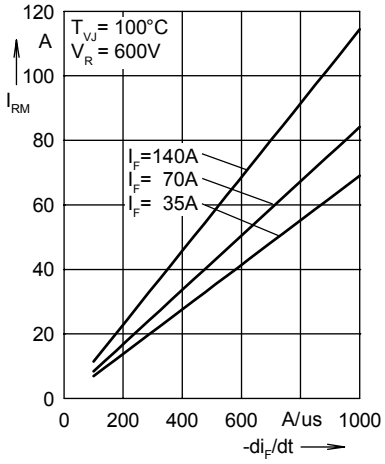

Fig. 3 Peak reverse current I_{RM} versus -di_F/dt

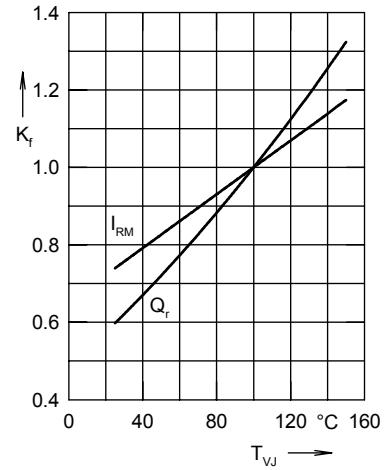

Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

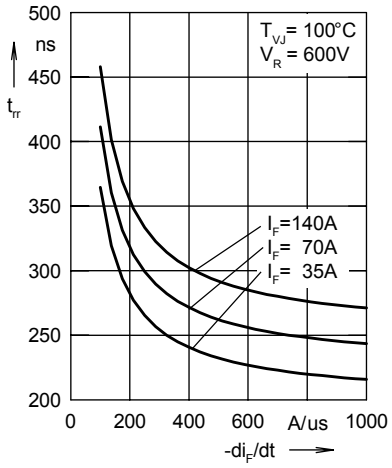

Fig. 5 Recovery time t_{rr} versus -di_F/dt

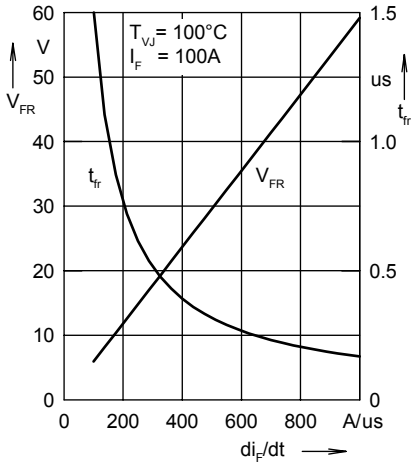

Fig. 6 Peak forward voltage V_{FR} and t_{fr} versus di_F/dt

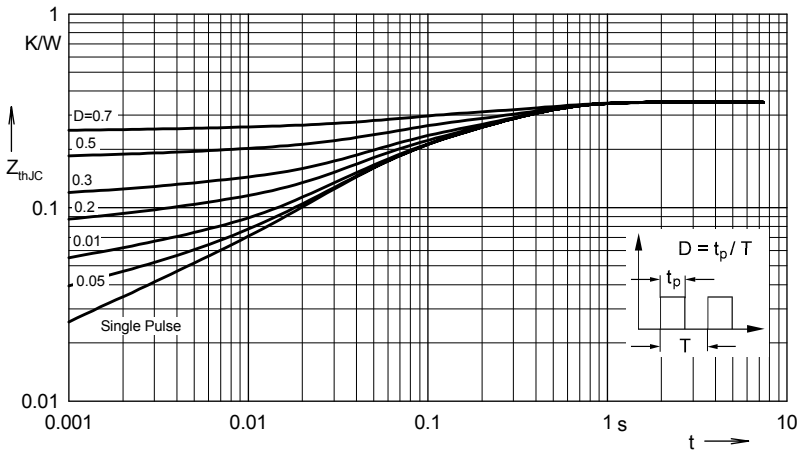

Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

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