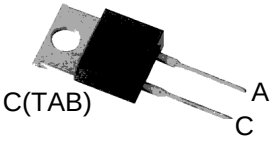
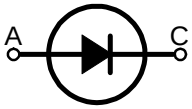
MUR20100, MUR20120

Ultra Fast Recovery Diodes

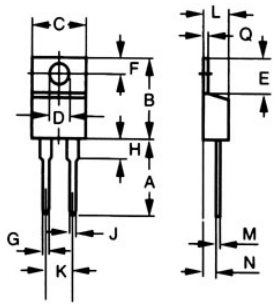




A=Anode, C=Cathode, TAB=Cathode

	V_{RSM} V	V_{RRM} V
MUR20100	1000	1000
MUR20120	1200	1200

Dimensions TO-220AC



Dim.	Inches Min.	Inches Max.	Milimeter Min.	Milimeter 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

Symbol	Test Conditions		Maximum Ratings	Unit
I_{FRMS} I_{FAVM} I_{FRM}	$T_{VJ}=T_{VJM}$ $T_C=85^oC$; rectangular, d=0.5 t_p<10us; rep. rating, pulse width limited by T_{VJM}		70 17 220	A
I_{FSM}	$T_{VJ}=45^oC$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	130 140	A
	$T_{VJ}=150^oC$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	110 120	
I^2t	$T_{VJ}=45^oC$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	85 80	A^2s
	$T_{VJ}=150^oC$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	60 60	
T_{VJ} T_{VJM} T_{stg}			-40...+150 150 -40...+150	^oC
P_{tot}	$T_C=25^oC$		78	W
M_d	Mounting torque		0.4...0.6	Nm
Weight			2	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}		750 250 7	uA uA mA
V_F	I_F=12A; T_{VJ}=150°C T_{VJ}=25°C		1.87 2.15	V
V_{TO}	For power-loss calculations only		1.65	V
r_T	T_{VJ}=T_{VJM}		18.2	mΩ
R_{thJC} R_{thJA}			1.6 60	K/W
t_{rr}	I_F=1A; -di/dt=100A/us; V_R=30V; T_{VJ}=25°C	40	60	ns
I_{RM}	V_R=540V; I_F=20A; -di$_F$/dt=100A/us; L≤0.05uH; T_{VJ}=100°C	7		A

FEATURES

* International standard package
* Glass passivated chips
* Very short recovery time
* Extremely low losses at high switching frequencies
* 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 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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Ultra Fast Recovery Diodes

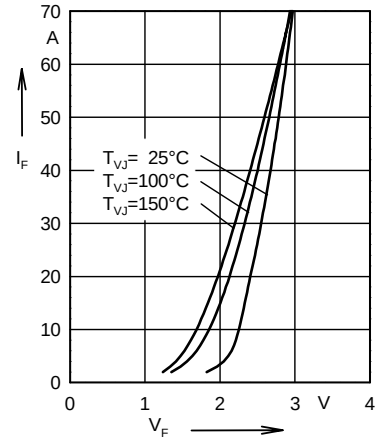

Fig. 1 Forward current versus voltage drop.

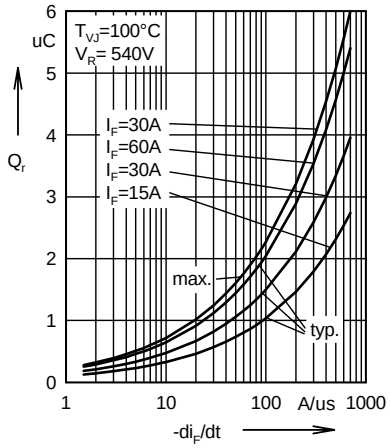

Fig. 2 Recovery charge versus $-di_F/dt$.

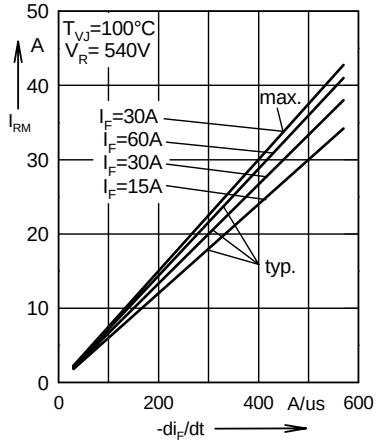

Fig. 3 Peak reverse current versus $-di_F/dt$.

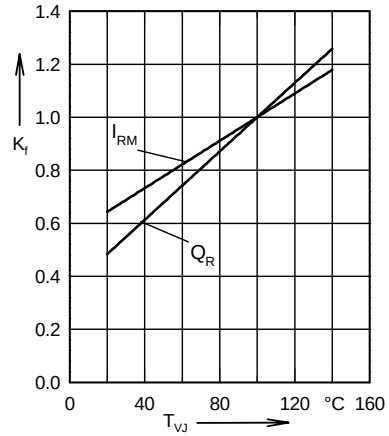

Fig. 4 Dynamic parameters versus junction temperature.

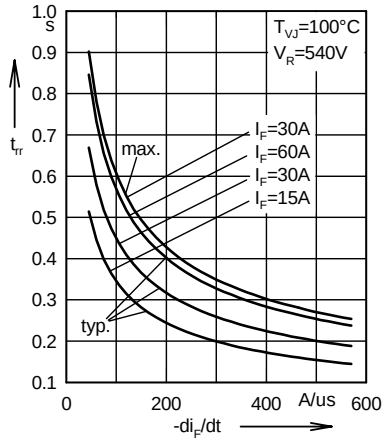

Fig. 5 Recovery time versus $-di_F/dt$.

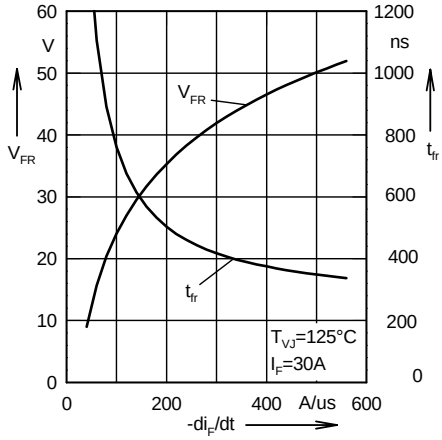

Fig. 6 Peak forward voltage versus di_F/dt.

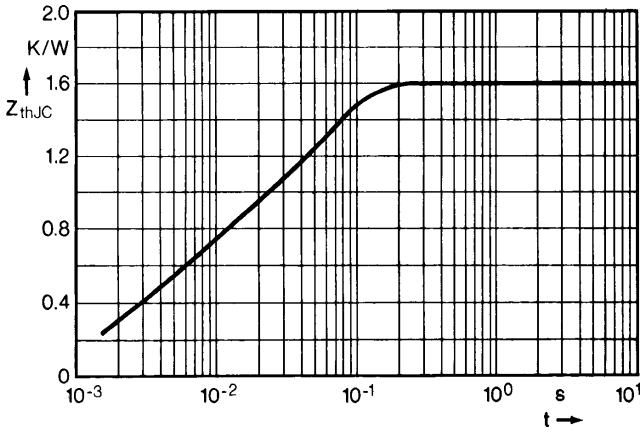

Fig. 7 Transient thermal impedance junction to case.