



December 2007 **PRELIMINARY**

MM12F020KC

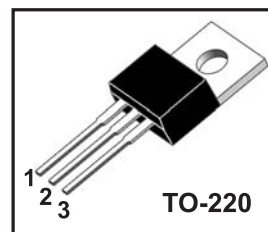
200V 12A FRED
RoHS Compliant

PRODUCT FEATURES

- Ultrafast Recovery Time
- Soft Recovery Characteristics
- Low Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current

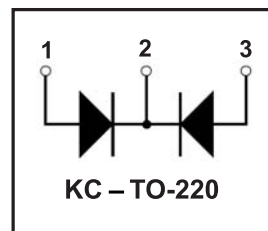
APPLICATIONS

- Freewheeling, Snubber, Clamp
- Inversion Welder
- PFC
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Converter & Chopper
- UPS



DESCRIPTION

FRED from MacMic utilizes advanced processing techniques to achieve ultrafast recovery times and higher forward current. Its soft recovery characteristics and high reliability suit for wide industrial applications.



ABSOLUTE MAXIMUM RATINGS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Max.	Unit
V_{RRM}	Repetitive Reverse Voltage		200	V
$I_{F(AV)}$	Average Forward Current	$T_C=100^{\circ}\text{C}$, Per Diode	6	A
		$T_C=100^{\circ}\text{C}$, Per Package	12	A
$I_{F(RMS)}$	RMS Forward Current	$T_C=100^{\circ}\text{C}$, Per Diode	9	A
		$T_C=100^{\circ}\text{C}$, Per Package	18	A
I_{FSM}	Non-Repetitive Surge Forward Current	$t=10\text{ms}$, Sine	60	A
T_J	Junction Temperature		-55 to +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range		-55 to +150	$^{\circ}\text{C}$

ELECTRICAL AND THERMAL CHARACTERISTICS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{RM}	Reverse Leakage Current	$V_R=200\text{V}$, $T_J=25^{\circ}\text{C}$	--	--	10	μA
		$V_R=200\text{V}$, $T_J=125^{\circ}\text{C}$	--	--	200	μA
V_F	Forward Voltage	$I_F=6\text{A}$, $T_J=25^{\circ}\text{C}$	--	0.9	1.1	V
		$I_F=6\text{A}$, $T_J=125^{\circ}\text{C}$	--	0.86	--	V
t_{rr}	Reverse Recovery Time ($I_F=1\text{A}$, $V_R=30\text{V}$, $di_F/dt=-200\text{A}/\mu\text{s}$)		--	20	--	ns
t_{rr}	Reverse Recovery Time	$I_F=6\text{A}$, $T_J=25^{\circ}\text{C}$	--	28	--	ns
t_{rr}	Reverse Recovery Time	$V_R=100\text{V}$, $T_J=125^{\circ}\text{C}$	--	40	--	ns
I_{RRM}	Max. Reverse Recovery Current	$di_F/dt=-200\text{A}/\mu\text{s}$, $T_J=125^{\circ}\text{C}$	--	5	--	A
$R_{\theta JC}$	Thermal Resistance	Junction-to-Case	--	--	4.0	$^{\circ}\text{C}/\text{W}$

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