

» Applications

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

» Features

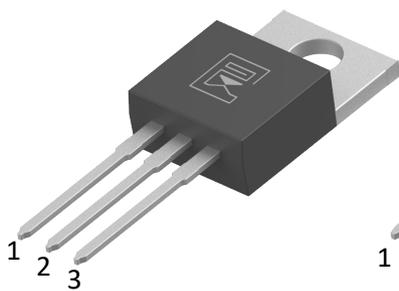
- Ultrafast Recovery Time
- Soft Recovery Characteristics
- Low Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current

» Product Summary

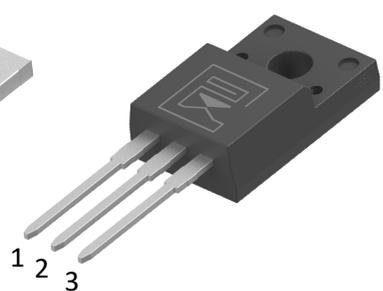
V_{RRM}	400	V
$I_F@T_c=110^\circ\text{C}$	5x 2	A
$V_{F,TYP}@10A,T_c=25^\circ\text{C}$	1.2	V
$V_{F,TYP}@10A,T_c=125^\circ\text{C}$	1	V
$I_{R,MAX}@T_c=25^\circ\text{C}$	10	uA

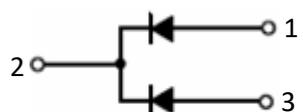


TO-220



TO-220F





1、ANODE
2、CATHODE
3、ANODE

» Package Marking and Ordering Information

Ordering code	Marking	Package	Packaging	Min. package quantity
MC-M10F40CT	M10F40CT	TO-220	Tube	1000
MF-M10F40CT	M10F40CT	TO-22F	Tube	1000

» Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

Parameter	Test Conditions	Symbol	Ratings	Unit
D.C. Reverse Voltage		V_R	400	V
Repetitive Reverse Voltage		V_{RRM}	400	V
Average Forward Current	$T_C=110^\circ\text{C}$, Per Diode	$I_{F(AV)(\text{per leg})}$	5	A
		$I_{F(AV)(\text{Total})}$	10	
Peak Repetitive Forward Current	$T_C=110^\circ\text{C}$, Per Diode	I_{FM}	10	A
Non-Repetitive Peak Surge Current	$T=45^\circ\text{C}$, 8.3ms	I_{FSM}	75	A
Junction Temperature		T_J	-55 to +150	°C
Storage Temperature		T_{stg}	-55-150	°C

» Thermal Characteristics

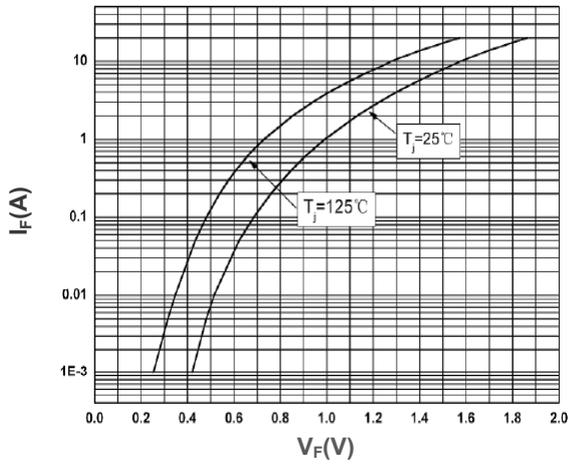
Parameter	Symbol	Package	Max	Unit
Maximum Thermal Resistance	$R_{\theta JC}$	TO-220	2	°C/W
	$R_{\theta JC}$	TO-220F	4	°C/W

» Electrical Characteristics (Per Leg) (Tc=25°C unless otherwise noted)

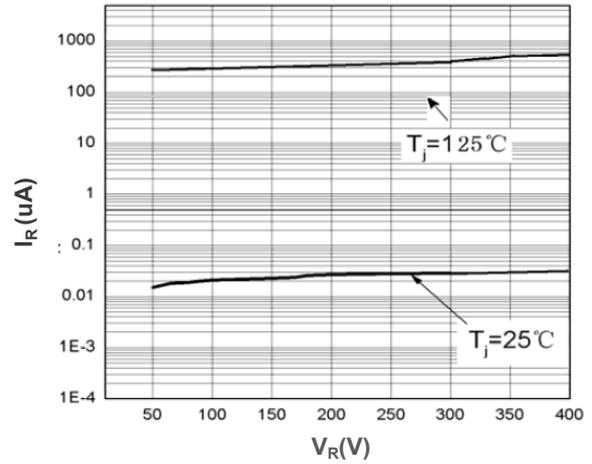
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
Forward Voltage	V_F	$I_F=5\text{A}$, $T_J=25^\circ\text{C}$	-	1.2	1.8	V	
		$I_F=5\text{A}$, $T_J=125^\circ\text{C}$	-	1	-	V	
Reverse Leakage Current	I_{RM}	$V_R=400\text{V}$, $T_J=25^\circ\text{C}$	-	-	10	uA	
		$V_R=400\text{V}$, $T_J=125^\circ\text{C}$	-	-	150	uA	
Reverse Recovery Time	t_{rr}	$I_F=1\text{A}$, $V_R=30\text{V}$, $diF/dt=-200\text{A}/\mu\text{s}$	-	25	-	ns	
Reverse Recovery Time	t_{rr}	$I_F=5\text{A}$ $V_R=400\text{V}$ $diF/dt=-200\text{A}/\mu\text{s}$	$T_J=25^\circ\text{C}$	-	50	-	ns
Reverse Recovery Time	t_{rr}		$T_J=125^\circ\text{C}$	-	85	-	ns
Reverse Recovery Charge	Q_{rr}		$T_J=125^\circ\text{C}$	-	180	-	nC
Max. Reverse Recovery Current	I_{RRM}		$T_J=125^\circ\text{C}$	-	5	-	A



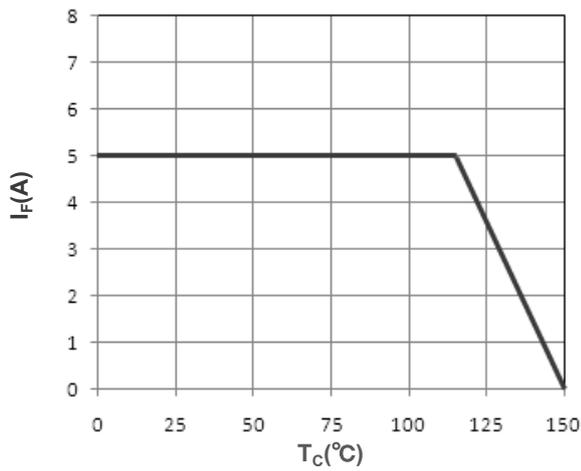
Characteristics Curves



Forward Characteristics Per Diode



Reverse Characteristics Per Diode



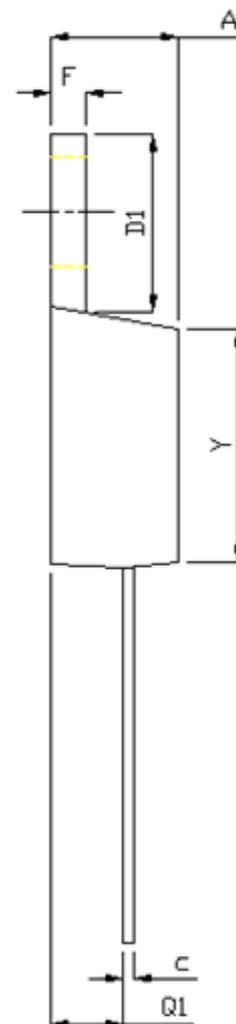
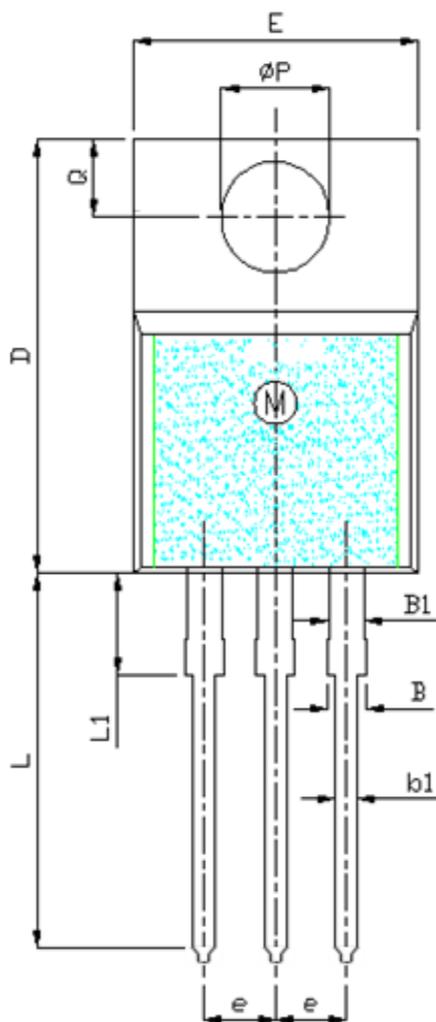
Current Derating Per Diode



TO-220 Package Dimensions

Unit: mm

Symbol	Min	Nom	Max	Symbol	Min	Nom	Max
A	4.00		4.80	e	2.44	2.54	2.64
B	1.20		1.40	F	1.10		1.40
B1	1.00		1.40	L	12.50		14.50
b1	0.75		0.95	L1	3.00	3.50	4.00
c	0.40		0.55	ΦP	3.70	3.80	3.90
D	15.00		16.50	Q	2.50		3.00
D1	5.90		6.90	Q1	2.00		2.90
E	9.90		10.70	Y	8.02	8.12	8.22





TO-220F Package Dimensions

Unit: mm

Symbol	Min	Nom	Max	Symbol	Min	Nom	Max
A	4.5		4.9	E1	6.5	7	7.5
A1	2.3		2.9	e	2.44	2.54	2.64
b	0.65		0.9	L	12.5		14.3
b1	1.1		1.7	L1	9.45		10.05
b2	1.2		1.4	L2	15		16
c	0.35		0.65	L3	3.2		4.4
D	14.5		16.5	ΦP	3		3.3
D1	6.1		6.9	Q	2.5		2.9
E	9.6		10.3				

