

» Applications

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

» Features

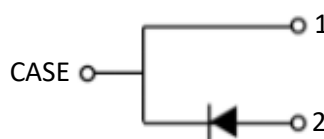
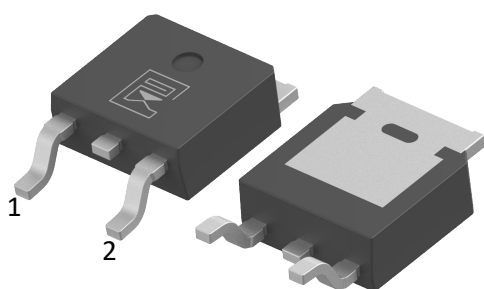
- Ultrafast Recovery Time
- Soft Recovery Characteristics
- Low Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current

» Product Summary

V_{RRM}	400	V
$I_F@T_c=110^{\circ}\text{C}$	5	A
$V_{F,MAX}@5A,T_c=25^{\circ}\text{C}$	1	V
$V_{F,TYP}@5A,T_c=125^{\circ}\text{C}$	0.8	V
$I_{R,MAX}@T_c=25^{\circ}\text{C}$	25	uA



TO-252



Cathde: 1

Anode: 2

» Package Marking and Ordering Information

Ordering code	Marking	Package	Packaging	Min. package quantity
MK-M5F40	M5F40	TO-252	Tape & Reel	3000

➤➤ 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	TC=110°C, Duty=0.5	$I_{F(AV)}(\text{per leg})$	5	A
Peak Repetitive Forward Current	TC=110°C, Duty=0.5	I_{FM}	20	A
Non-Repetitive Peak Surge Current	T=45°C, 8.3ms	I_{FSM}	120	A
Junction Temperature		T_J	-55 to +175	°C
Storage Temperature		T_{stg}	-55 to +175	°C

➤➤ Thermal Characteristics

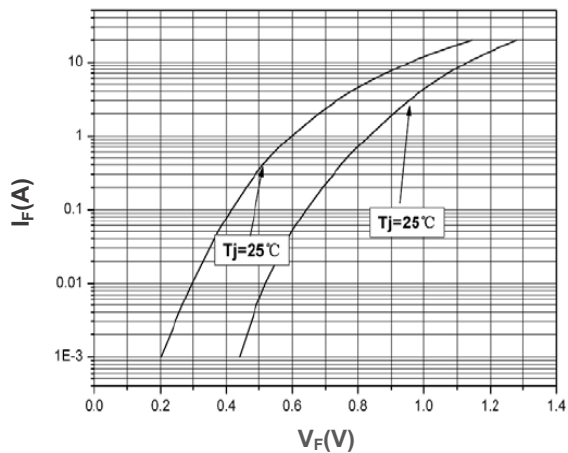
Parameter	Symbol	Package	Max	Unit
Maximum Thermal Resistance	$R_{\theta JC}$	TO-252	3	°C/W

➤➤ Electrical Characteristics (Tc=25°C unless otherwise noted)

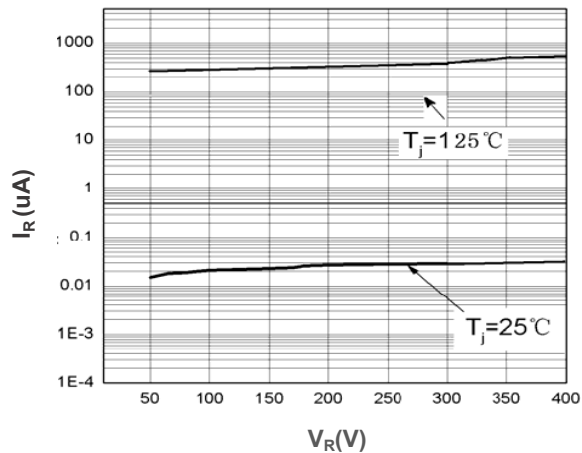
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
Forward Voltage	V _F	I _F =5A, T _J =25℃	-	1	1.3	V	
		I _F =5A, T _J =125℃	-	0.8	-	V	
Reverse Leakage Current	I _{RM}	VR=400V, TJ=25℃	-	-	25	uA	
		VR=400V, TJ=125℃	-	-	500	uA	
Reverse Recovery Time	t _{rr}	I _F =1A, V _R =30V, diF/dt=-200A/μs	-	30	-	ns	
Reverse Recovery Time	t _{rr}	I _F =5A V _R =400V diF/dt=-200A/μs	T _J =25℃	-	60	-	ns
Reverse Recovery Time	t _{rr}		T _J =125℃	-	95	-	ns
Reverse Recovery Charge	Q _{rr}		T _J =125℃	-	185	-	nC
Max. Reverse Recovery Current	I _{RRM}		T _J =125℃	-	8	-	A



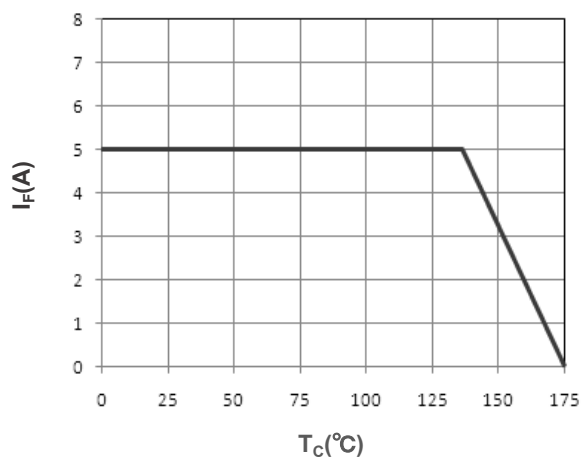
Characteristics Curves



Forward Characteristics



Reverse Characteristics



Current Derating



» TO-252 Package Dimensions

Unit: mm

Symbol	Min	Nom	Max	Symbol	Min	Nom	Max
A	2.20		2.40	L	9.80		10.40
A1	0.00		0.13	L1		2.90	
b	0.66		0.86	L2	1.40		1.60
c	0.46		0.58	L3		1.80	
D	6.50		6.70	L4	0.60		1.00
D1	5.10		5.46	L5	0.90		1.25
D2		4.83		Φ	1.1		1.30
E	6.00		6.20	θ	0°		8°
e	2.19		2.39	V		5.35	

