

**FRED Modules****Features**

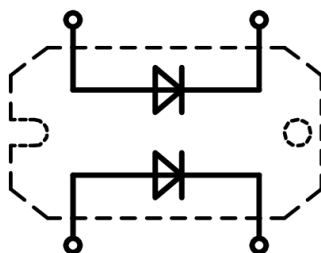
- Low forward voltage drop
- Fully insulated package
- Planar passivated chips
- Very short recovery behavior
- Very short recovery time

Product Summary

Parameter	Value	Unit
V_{RRM}	1200	V
$I_{F(AV)}$	100	A
$I_{FSM}(@ t_p = 10ms)$	850	A
$V_F(Max)$	1.80	V
$T_{rr}(Typ)$	45	ns

Applications

- Welding
- SMPS

**Absolute Maximum Ratings (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)**

Parameter	Conditions	Symbol	Values	Unit
Repetitive peak reverse voltage	$T_{vj} = 25^\circ\text{C}$	V_{RRM}	1200	V
Non-repetitive peak reverse voltage	$T_{vj} = 25^\circ\text{C}$	V_{RSM}	1200	V
Average on-state current	$T_C = 50^\circ\text{C}$, per diode	$I_{F(AV)}$	100	A
Forward surge current	1/2 cycle, Sine wave, 50Hz $T_{vj} = 25^\circ\text{C}$	I_{FSM}	850	A
I^2t Value for fusing		I^2t	3600	A^2s
RMS isolation voltage	A.C 50Hz(1s/1min)	V_{ISO}	3000/2500	V
Junction temperature range		T_J	-40 - 150	$^\circ\text{C}$
Storage temperature range		T_{stg}	-40 - 125	$^\circ\text{C}$

**Electrical Characteristics (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)**

Parameter	Conditions	Symbol	Values			Unit
			Min.	Typ.	Max.	
Forward voltage	$I_F = 100\text{A}$, $T_{vj} = 25^\circ\text{C}$	V_F		1.50	1.80	V
Reverse leakage current	$V_R = V_{RRM}$, $T_{vj} = 25^\circ\text{C}$	I_R			0.02	mA
	$V_R = V_{RRM}$, $T_{vj} = 125^\circ\text{C}$				1	
Maximum reverse recovery current	$I_F = 50\text{A}$, $V_R = 400\text{V}$, $-di/dt = 200\text{A}/\mu\text{s}$, $T_{vj} = 25^\circ\text{C}$	I_{RM}		6		A
	$I_F = 50\text{A}$, $V_R = 400\text{V}$, $-di/dt = 200\text{A}/\mu\text{s}$, $T_{vj} = 125^\circ\text{C}$	I_{RM}		27		A
Maximum reverse recovery time	$I_F = 1\text{A}$, $V_R = 30\text{V}$, $-di/dt = 200\text{A}/\mu\text{s}$, $T_{vj} = 25^\circ\text{C}$	t_{rr}		45		ns
	$I_F = 50\text{A}$, $V_R = 400\text{V}$, $-di/dt = 200\text{A}/\mu\text{s}$, $T_{vj} = 25^\circ\text{C}$	t_{rr}		220		ns
	$I_F = 50\text{A}$, $V_R = 400\text{V}$, $-di/dt = 200\text{A}/\mu\text{s}$, $T_{vj} = 125^\circ\text{C}$	t_{rr}		370		ns
Maximum recovered charge	$I_F = 50\text{A}$, $V_R = 400\text{V}$, $-di/dt = 200\text{A}/\mu\text{s}$, $T_{vj} = 25^\circ\text{C}$	Q_{rr}		1500		nC
	$I_F = 50\text{A}$, $V_R = 400\text{V}$, $-di/dt = 200\text{A}/\mu\text{s}$, $T_{vj} = 125^\circ\text{C}$	Q_{rr}		5900		nC

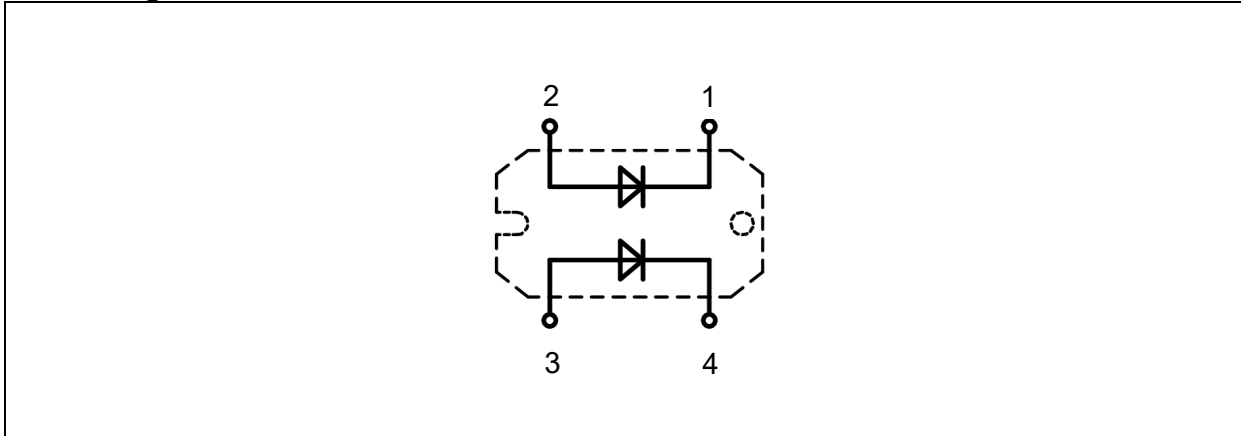
Thermal Characteristics (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Conditions	Symbol	Values			Unit
			Min.	Typ.	Max.	
Thermal resistance, junction to case	per diode	$R_{th(j-c)}$			0.55	$^\circ\text{C}/\text{W}$
Thermal resistance, case to heatsink	per diode	$R_{th(c-s)}$		0.13		$^\circ\text{C}/\text{W}$
Mounting torque	Base plate to heatsink screw M4	M	1.0		1.5	N·m
	Electrode to terminal screw M4		1.0		1.5	N·m

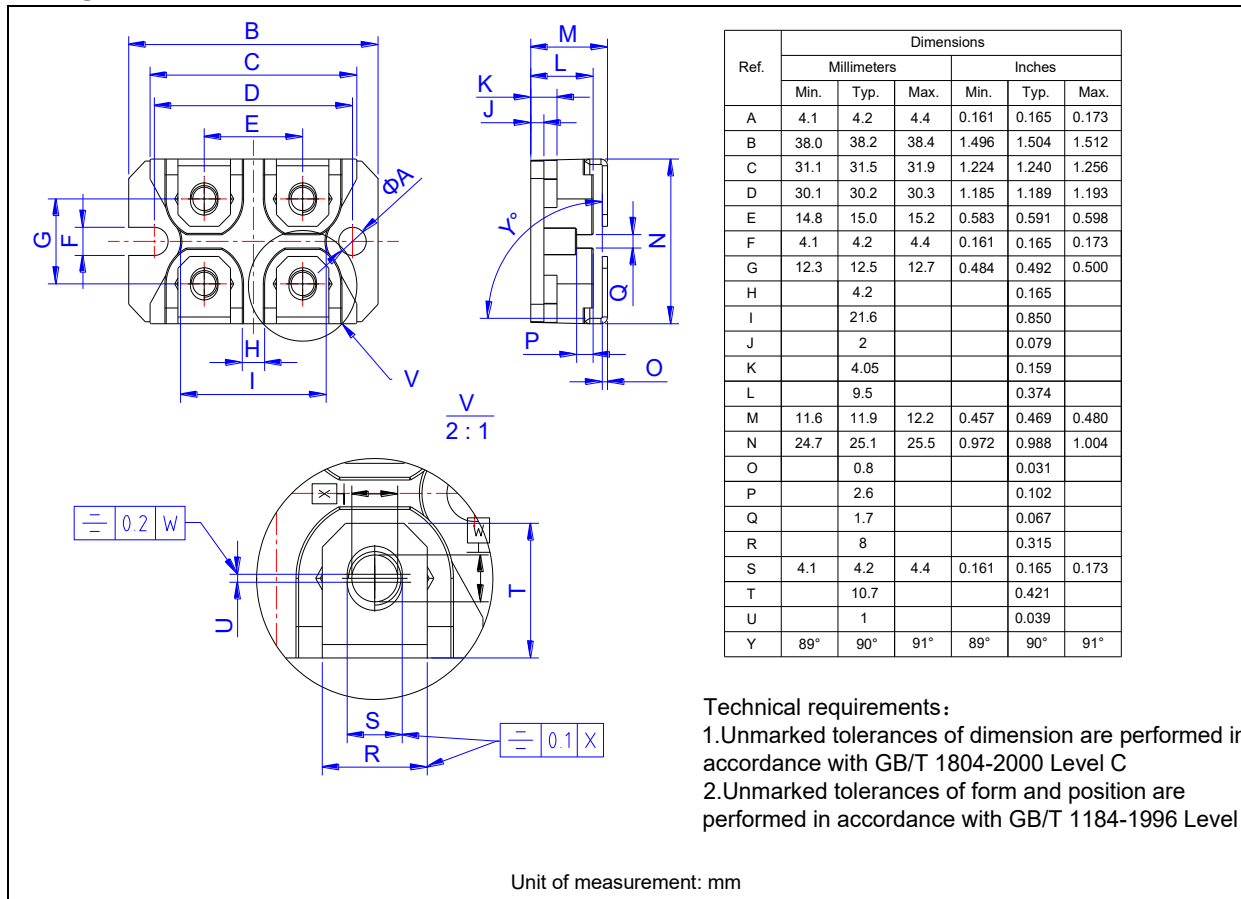
Ordering Information

Device	Marking	Package	Weight	Inner Box	Per Carton
JMF100K212STU	JMF100K212STU	ST	29 g/PCS	80 PCS	160 PCS

Circuit Diagram



Package Outlines (mm)





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