Pb Free Plating Product

FML32S

20Ampere,200Volt Insulated Fast Recovery Diode for Welding Machine

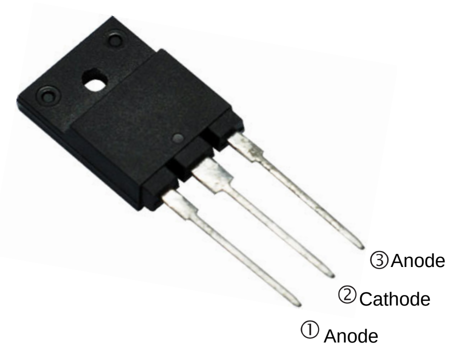
APPLICATION

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

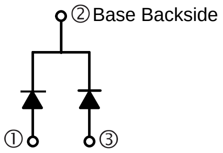
PRODUCT FEATURE

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

TO-3PF/TO-3PML



Internal Configuration



GENERAL DESCRIPTION

FML32S using the lastest FRED FAB process with ultrafast and soft recovery characteristic for welding machine.

ABSOLUTE MAXIMUM RATINGS

T_C=25°C unless otherwise specified

Symbol	Parameter/Test Conditions		Values	Unit
V_R	Maximum D.C. Reverse Voltage		210	V
V_{RRM}	Maximum Repetitive Reverse Voltage			
$I_{F(AV)}$	Average Forward Current	T_C=110°C, Per Diode	10	A
		T_C=110°C, Per Package	20	
$I_{F(RMS)}$	RMS Forward Current	T_C=110°C, Per Diode	14	
I_{FSM}	Non-Repetitive Surge Forward Current	T_J=45°C,t=10ms, 50Hz, Sine	100	
P_D	Power Dissipation		83	W
T_J	Junction Temperature		-55 to +150	°C
T_{STG}	Storage Temperature Range		-55 to +150	°C
Torque	Module-to-Sink	Recommended（M3）	1.1	N•m
$R_{th(J-C)}$	Junction-to-Case Thermal Resistance, Per Diode		1.5	°C /W
Weight			5.2	g

ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
I_{RM}	Maximum Reverse Leakage Current	V_R =220V			10	μA
		V_R =220V, T_J = 125°C			10	mA
V_F	Forward Voltage	I_F=10A		0.9	1.1	V
		I_F=10A,T_J=125°C		0.8	0.95	
trr	Reverse Recovery Time (I$_F$ = 1A, di$_F$/dt = -200A/μs, V_R = 30V)			17		ns
trr	Reverse Recovery Time	I_F =10A,V_R =100V, di$_F$/dt = -200A/μs		32		ns
I_{RRM}	Maximum Reverse Recovery Current			2.1		A
trr	Reverse Recovery Time	I_F = 10A,V_R =100V, di$_F$/dt = -200A/μs ,T_J=125°C		45		ns
I_{RRM}	Maximum Reverse Recovery Current			5		A

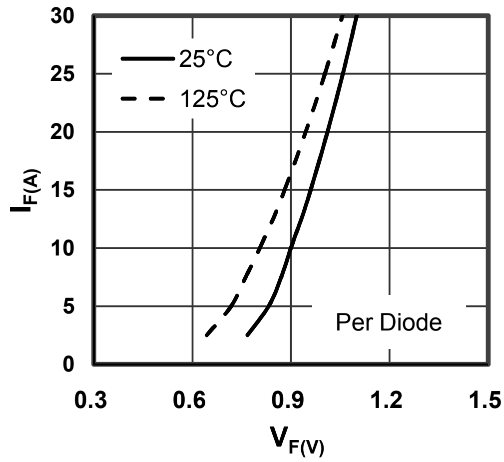


Figure 1. Forward Voltage Drop vs Forward Current

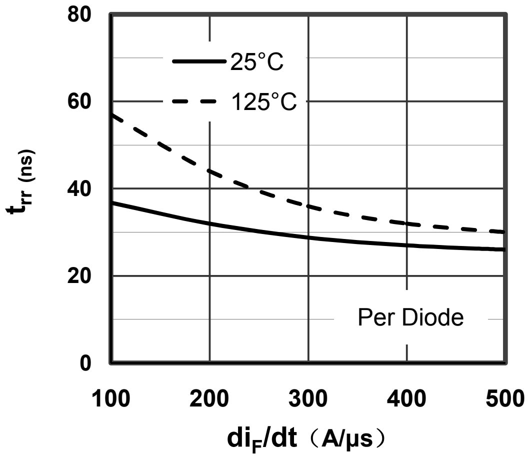


Figure 2. Reverse Recovery Time vs diF/dt

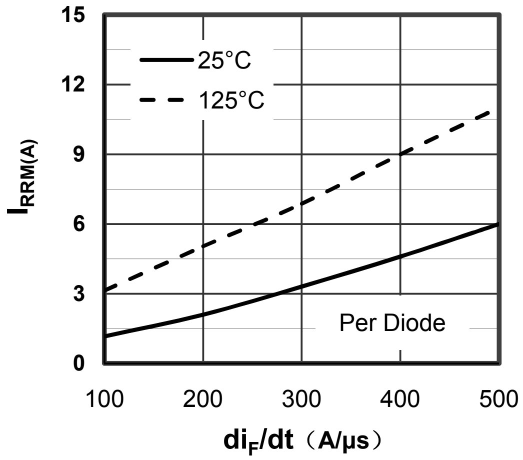


Figure 3. Reverse Recovery Current vs diF/dt

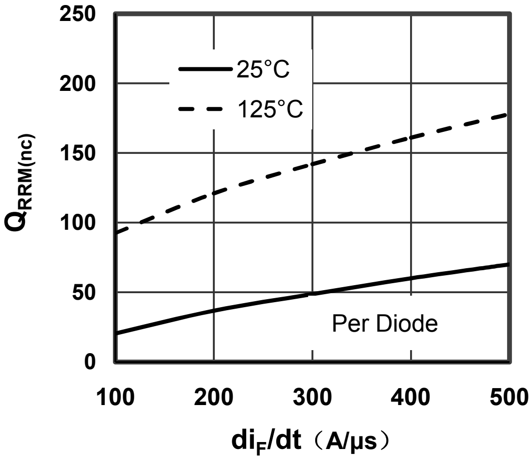


Figure 4. Reverse Recovery Charge vs diF/dt

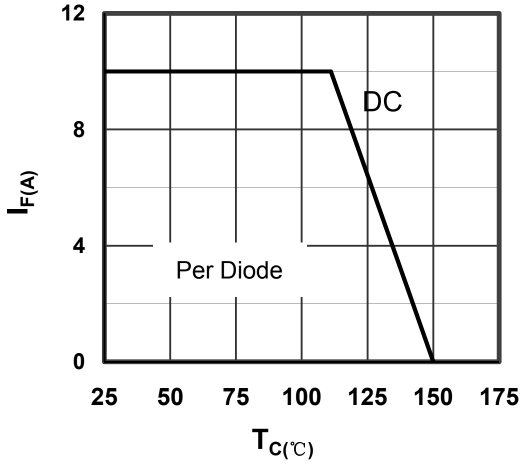


Figure 5.Forward current vs.Case temperature

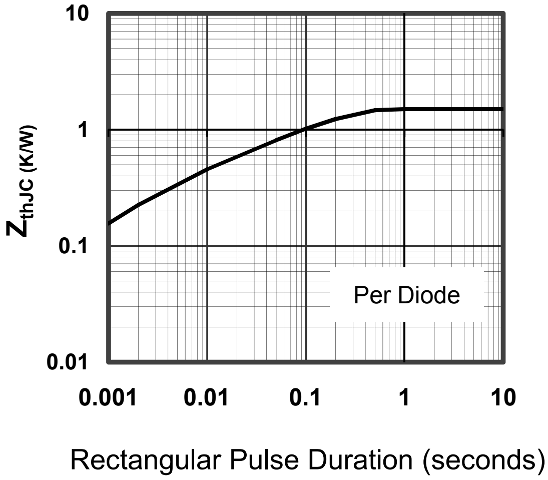


Figure 6. Transient Thermal Impedance

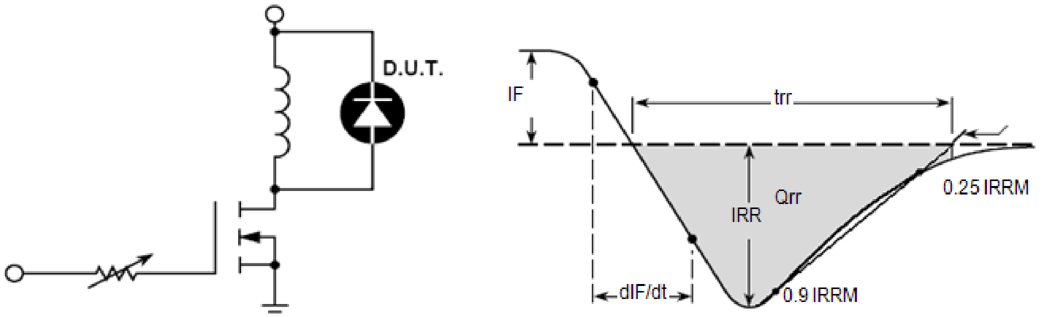
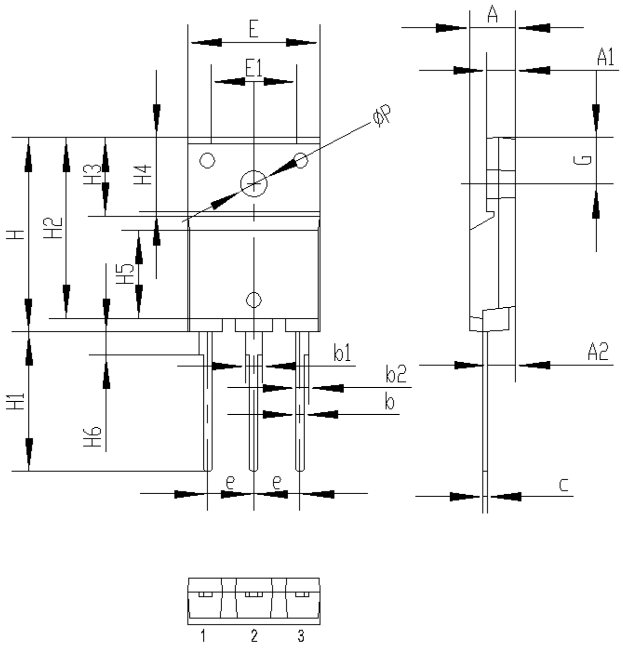


Figure 7. Diode Reverse Recovery Test Circuit and Waveform



	mm		
	MIN	NOM	MAX
A	5.3	5.5	5.7
A1	3.25	3.45	3.65
A2	3.15	3.35	3.55
b	0.85	1.0	1.15
b1	1.85	2.0	2.15
b2	1.45	1.6	1.75
c	0.4	0.5	0.6
e	5.3	5.45	5.6
E	15.40	15.60	15.80
E1	10.00	10.20	10.40
H	22.80	23.00	23.20
H1	16.00	16.50	17.00
H2	21.20	21.40	21.60
H3	9.10	9.30	9.50
H4	8.55	8.75	8.95
H5	10.20	10.40	10.60
H6	2.55	2.70	2.85
G	5.3	5.5	5.7
ØP	3.05	3.2	3.35

Dimensions in Millimeters
Fig8. Package Outline