

Pb Free Plating Product

## FML-4204S



20Amperes,400Volts Insulated Common Cathode Ultra Fast Recovery Rectifiers

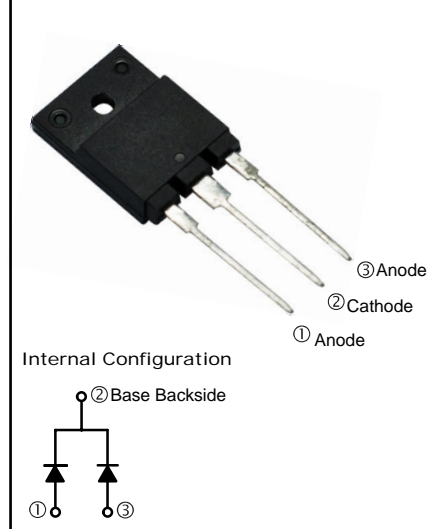
### APPLICATION

- 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)



### GENERAL DESCRIPTION

FML-4204S using the latest FRED FAB process(planar passivation chip) with ultrafast and soft recovery characteristic.

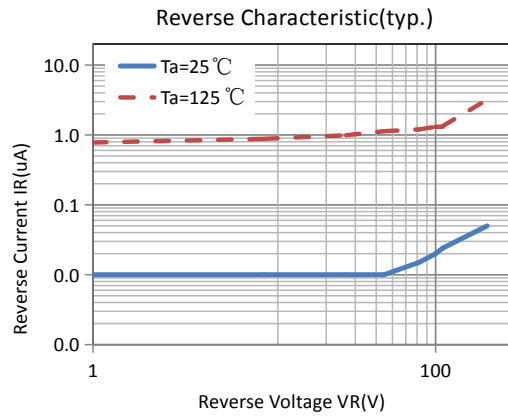
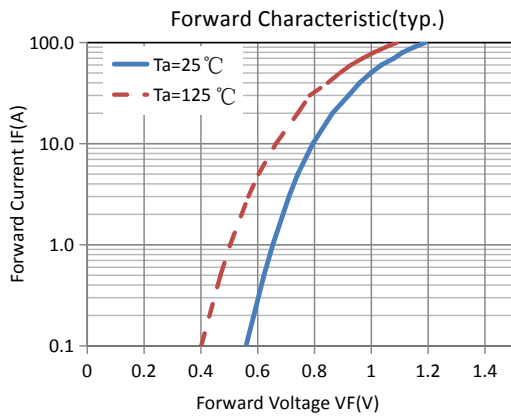
Absolute Maximum Ratings				
Parameter	Symbol	Test Conditions	Values	Units
Repetitive peak reverse voltage	$V_{RRM}$		400	V
Continuous forward current (total device)	$I_{F(AV)}$	$T_c = 110^\circ\text{C}$	20	A
Single pulse forward current (total device)	$I_{FSM}$	$T_c = 25^\circ\text{C}$	180	
Maximum repetitive forward current	$I_{FRM}$	Square wave, 20kHz	40	
Operating junction	$T_j$		175	$^\circ\text{C}$
Storage temperatures	$T_{stg}$		-55 to +175	$^\circ\text{C}$

Electrical characteristics ( $T_a=25^\circ\text{C}$ unless otherwise specified)						
Parameter	Symbol	Test Conditions	Min	Typ.	Max.	Units
Breakdown voltage Blocking voltage	$V_{BR}, V_R$	$I_R=100\mu\text{A}$	400			V
Forward voltage (Per Diode)	$V_F$	$I_F=10\text{A}$		1.10	1.45	
		$I_F=10\text{A}, T_j=125^\circ\text{C}$		0.90	1.30	
Reverse leakage current (Per Diode)	$I_R$	$V_R=V_{RRM}$			10	$\mu\text{A}$
		$T_j=150^\circ\text{C}, V_R=400\text{V}$			100	
Reverse recovery time (Per Diode)	$t_{rr}$	$I_F=0.5\text{A}, I_R=1\text{A}, I_{RR}=0.25\text{A}$		35	45	ns
		$I_F=1\text{A}, V_R=30\text{V}, di/dt=200\text{A}/\mu\text{s}$		25	35	

### Thermal characteristics

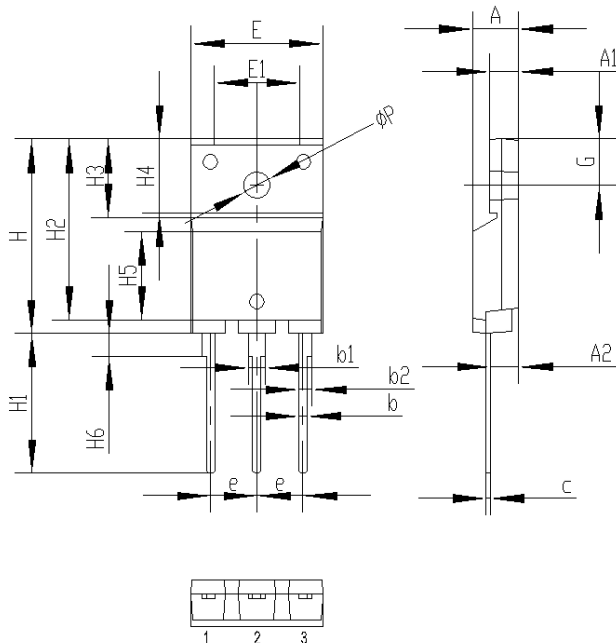
Parameter	Symbol	Typ	Units
Junction-to-Case	$R_{\theta JC}$	1.2	$^\circ\text{C}/\text{W}$

## Electrical performance (typical)



## Package Information

### TO-3PF PACKAGE



	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