

Pb Free Plating Product

X4204S



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

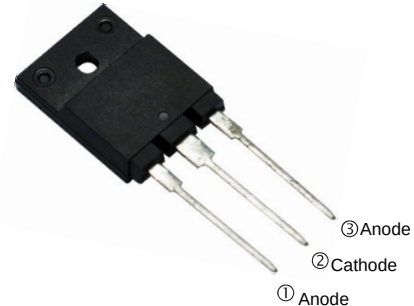
APPLICATION

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

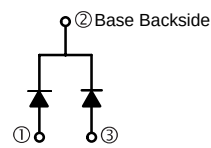
PRODUCT FEATURE

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

TO-3PF(TO-3PML)



Internal Configuration



GENERAL DESCRIPTION

X4204S 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	$^\circ\text{C}$

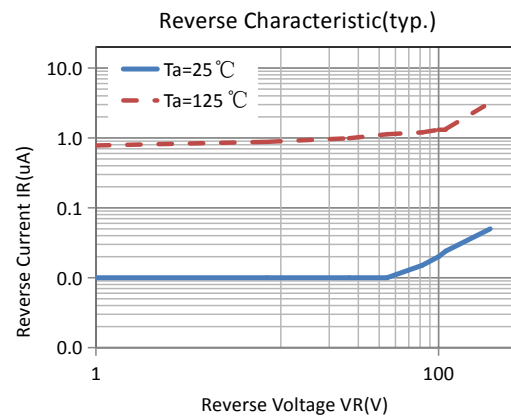
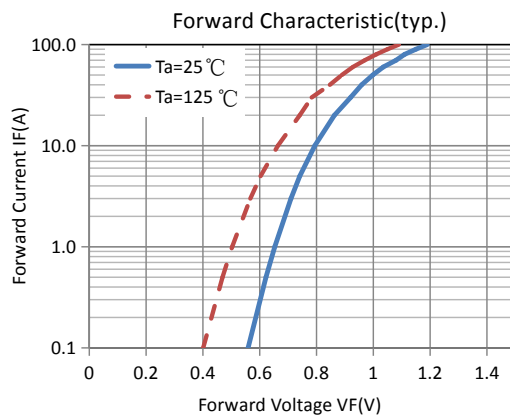
Electrical characteristics ($T_a=25^\circ\text{C}$ unless otherwise specified)

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	μA
		$T_j=150^\circ\text{C}, V_R=400\text{V}$			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

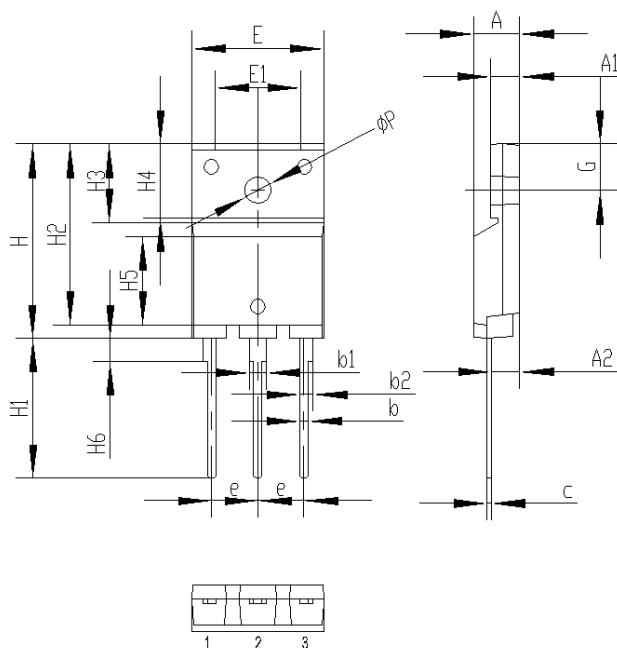
Paramter	Symbol	Typ	Units
Junction-to-Case	$R_{\theta JC}$	1.2	$^\circ\text{C}/\text{W}$

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