

### DESCRIPTION

FRED from Samwin utilizes advanced processing techniques to achieve ultrafast recovery times and higher forward current. Its soft recovery characteristics and high reliability suit for wide industrial applications.

### PRODUCT FEATURES

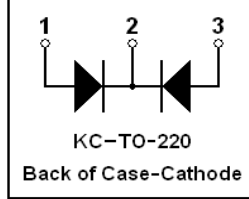
- Ultrafast Recovery Time
- Soft Recovery Characteristics
- Low Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current

### APPLICATIONS

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



TO-220  
SW P 1220D



### Absolute Maximum Ratings

TC=25° C unless otherwise specified

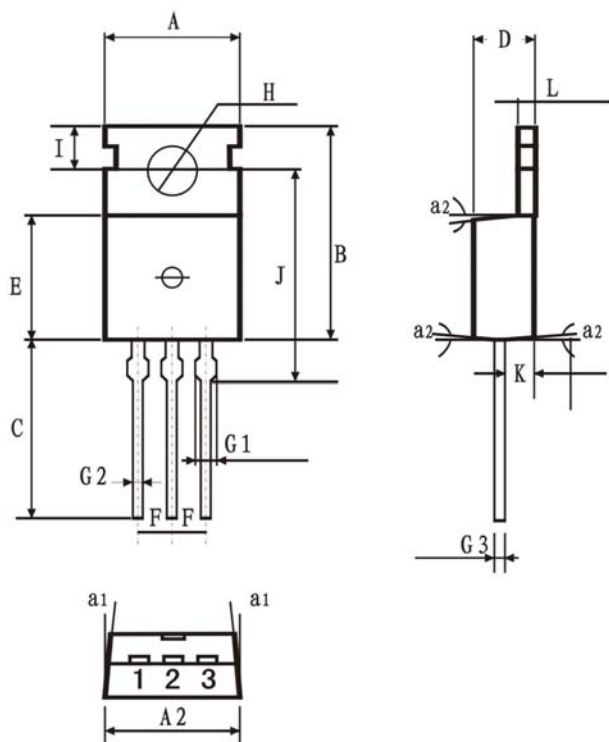
Symbol	Parameter	Test Conditions	Max.	Unit
$V_{RRM}$	Repetitive Reverse Voltage		200	V
$I_{F(AV)}$	Average Forward Current	$T_C=100^\circ\text{C}$ , Per Diode	6	A
		$T_C=100^\circ\text{C}$ , Per Package	12	A
$I_{F(RMS)}$	RMS Forward Current	$T_C=100^\circ\text{C}$ , Per Diode	9	A
		$T_C=100^\circ\text{C}$ , Per Package	18	A
$I_{FSM}$	Non-Repetitive Surge Forward Current	$t=10\text{ms}$ , Sine	60	A
$T_J$	Junction Temperature		-55 to +150	° C
$T_{STG}$	Storage Temperature Range		-55 to +150	° C

### Electrical and Thermal Characteristics

TC=25° C unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
$I_{RM}$	Reverse Leakage Current	$V_R=200\text{V}$ , $T_J=25^\circ\text{C}$	--	--	10	$\mu\text{A}$	
		$V_R=200\text{V}$ , $T_J=125^\circ\text{C}$	--	--	200	$\mu\text{A}$	
$V_F$	Forward Voltage	$I_F=6\text{A}$ , $T_J=25^\circ\text{C}$	--	0.90	1.1	V	
		$I_F=6\text{A}$ , $T_J=125^\circ\text{C}$	--	0.86	--	V	
$t_{rr}$	Reverse Recovery Time ( $I_F=1\text{A}$ , $V_R=30\text{V}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ )		--	20	--	ns	
$t_{rr}$	Reverse Recovery Time	$I_F=6\text{A}$ $V_R=100\text{V}$ $di_F/dt=-200\text{A}/\mu\text{s}$	$T_J=25^\circ\text{C}$	--	28	--	ns
$t_{rr}$	Reverse Recovery Time		$T_J=125^\circ\text{C}$	--	40	--	ns
$I_{RRM}$	Max. Reverse Recovery Current		$T_J=125^\circ\text{C}$	--	5	--	A
$R_{\theta JC}$	Thermal Resistance	Junction-to-Case	--	--	4.0	° C /W	

### Package Dimensions TO-220



A(mm)	9.66~10.28
A2(mm)	9.80~10.20
B(mm)	15.6~15.8
C(mm)	12.70~14.27
D(mm)	4.30~4.70
E(mm)	8.59~9.40
F(mm)	typical 2.54
G1(mm)	1.32~1.72
G2(mm)	0.70~0.95
G3(mm)	0.4~0.60
H(mm) dia.	3.50~3.83
I(mm)	2.7~2.9
J(mm)	15.70~16.25
K(mm)	2.20~2.90
L(mm)	1.15~1.40
a(degree)	45°
a2(degree)	3° ±0.5°
a3(degree)	3° ±0