Ruttonsha International Rectifier Ltd.

FAST RECOVERY SILICON RECTIFIER

IRKE 800...F
High Voltage Single Diode Module

FEATURES

 # Fast Recovery Diode, 2µs. Recovery time
 # Electrically isolated base plate.
 # 3000Vrms isolated voltage.
 # Industrial standard package.
 # Simplified mechanical designs, rapid assembly.
 # High surge capability.

DESCRIPTION

These IRK series of Power Modules use power diodes in three basic configurations. The semiconductors are electrically isolated from the metal base, allowing common heat inks and compact assemblies to be built. They can be interconnected to form single phase or three phase bridges.
These modules are intended for Fast recovery rectifier application.

MAJOR RATING & CHARACTERISTICS

Parameters		IRKE 800	Units
$I_{F(AV)}$	@Tc-80°C	800	A
$I_{F(RMS)}$		1256	A
I_{FSM}	@ 50Hz	19000	A
I^2t	@ 50Hz	1805	KA^2S
V_{RRM}		Up to 1200	V
T_{rr}		1 - 2	µs
T_J		-40 to 125	°C

IRKE 800...F Series

ELECTRICAL SPECIFICATION

VOLTAGE RATINGS

Type Number	Voltage Code	V_{RRM} max. repetitive peak reverse and off-state blocking voltage V	V_{RSM} max.Non-repetitive peak reverse voltage V	I_{DRM} / I_{RRM} max. @ 125°C Max. mA
IRKE 800...F	08	800	900	60
	10	1000	1100	
	12	1200	1300	

ON-STATE CONDUCTION

	Parameter	IRKE 800	Unit	Conditions	
$I_{F(AV)}$	Max, average forward current @ Case temperature	800	A	180° conduction, half sine wave	
		80	°C		
$I_{F(RMS)}$	Max, RMS forward current	1256	A	Tc 80°C	
I_{FSM}	Max, peak, one cycle forward non-repetitive surge current	19000	A	t = 10ms	Tj = 25°C
I^2t	Maximum I^2t for fusing	1805	KA^2s	t = 10ms	
$V_{T(TO)}$	Threshould voltage	1.15	V	Tj = Tj max.	
r_t	Slope resistance	0.285	mΩ	Tj = Tj max,	
V_{FM}	Max, farward voltage drop	2.50	V	I_F = 3500Amps, Tj = Tj Max.	

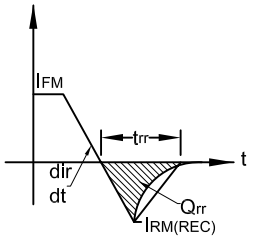
BLOCKING

	Parameter	IRKE 800	Unit	Conditions
I_{RRM}	Max. peak reverse leakage current	60	mA	Tj = 125°C,
V_{ISO}	RMS Isolation voltage	3000	V	50Hz, Circuit to base, all terminal shorted, t=1 min.

FAST RECOVERY DIODE MODULE

IRKE 800...F Series

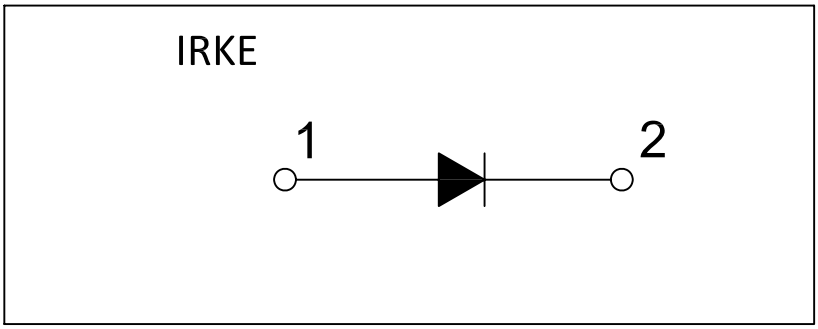
Recovery Characteristics

Code	TEST CONDITIONS			TYPICAL VALUES AT T_J = 125°C			
	IPK SQUARE PULSE (A)	Di/Dt (A/µs)	Vr (V)	trr AT 25% I_{RRM} (µs)	Qrr (µC)	Irr (A)	
IRKE 800...F	1000	60	-50	1 - 2	450	135	

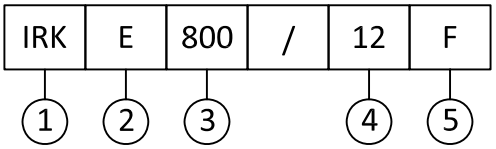
THERMAL AND MECHANICAL SPECIFICATION

	Parameter	IRKE 800	Unit	Conditions
T_J	Junction operating temperature	-40 to 125	°C	
T_{stg}	Max, storage temperature range	-40 to 150		
R_{thJ-C}	Thermal resistance, junction to case	0.046	°K/W	
R_{thcs}	Thermal resistance,case to heat sink	0.020	°K/W	
W t	Approximate Weight	2200	g	

CIRCUIT CONFIGURATION TABLE



CIRCUIT CONFIGURATION TABLE



1). - Module Type
2). - Circuit configuration (See Circuit Configuration table)
3). - Current Code
4). - Voltage Code (See Voltage Rating Table)
5). - Fast Recovery Diode

OUTLINE DIAGRAM