



Ruttonsha International Rectifier Ltd.

POWER MODULES

IRKE 1070/... High Voltage Single Diode Module

FEATURES

- # 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 sinks and compact assemblies to be built. They can be interconnected to form single phase or three phase bridges.

These modules are intended for general purpose applications such as battery chargers, welders and plating equipment.

MAJOR RATING & CHARACTERISTICS

Parameters	IRKE 1070	Units
$I_{F(AV)}$ @Tc-100°C	1100	A
$I_{F(RMS)}$	1700	A
I_{FSM} @ 50Hz	41000	A
I^2t @ 50Hz	8405000	A ² S
V_{RRM}	Up to 1800	V
T_J	-40 to 150	°C

POWER MODULES

IRKE 1070 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. @ 150°C Max. mA
IRKE 1070	08	800	900	50
	10	1000	1100	
	12	1200	1300	
	14	1400	1500	
	16	1600	1700	
	18	1800	1900	

ON-STATE CONDUCTION

	Parameter	IRKE 1070	Unit	Conditions	
$I_{F(AV)}$	Max, average forward current @ Case temperature	1100	A	180° conduction, half sine wave	
		100	°C		
$I_{F(RMS)}$	Max, RMS forward current	1700	A	T _c 100°C	
I_{FSM}	Max, peak, one cycle forward non-repetitive surge current	41000	A	t = 10ms	T _j = 25°C
I^2t	Maximum I ² t for fusing	8405000	A ² s	t = 10ms	
$V_{T(TO)}$	Threshold voltage	0.75	V	T _j = T _j max.	
r_t	Slope resistance	0.073	mΩ	T _j = T _j max,	
V_{FM}	Max, forward voltage drop	1.15	V	I _F = 3000Amps, T _j = T _j Max.	

BLOCKING

	Parameter	IRKE 1070	Unit	Conditions
I_{RRM}	Max. peak reverse leakage current	50	mA	T _j = 150°C,
V_{ISO}	RMS Isolation voltage	3000	V	50Hz, Circuit to base, all terminal shorted, t=1 min.

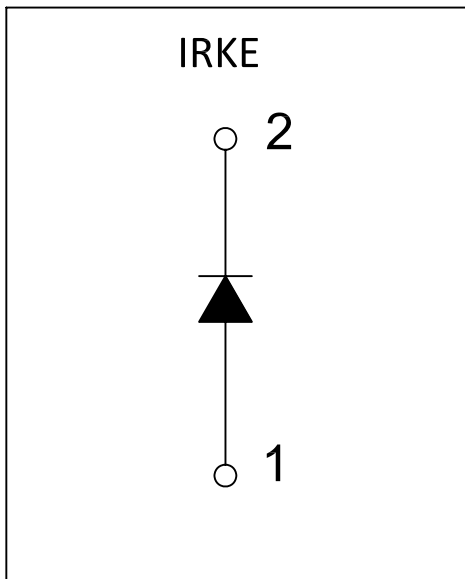
POWER MODULES

IRKE 1070 Series

THERMAL AND MECHANICAL SPECIFICATION

	Parameter	IRKE 1070	Unit	Conditions
T _J	Junction operating temperature	-40 to 150	°C	
T _{stg}	Max, storage temperature range	-40 to 150		
R _{thJ-C}	Thermal resistance, junction to case	0.048	°K/W	Per arm.
R _{thcs}	Thermal resistance, case to heat sink	0.015	°K/W	Per arm.
W t	Approximate Weight	2000	g	

CIRCUIT CONFIGURATION TABLE



CIRCUIT CONFIGURATION TABLE

IRK	E	1070	/	18
①	②	③		④

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

POWER MODULES

IRKE 1070 Series

OUTLINE DIAGRAM

