

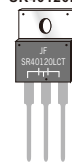
### FEATURES

- Power pack
- Metal silicon junction ,majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss ,high efficiency
- High current capability ,low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL Level 1, per J-STD-020, LF MAX peak of 245°C (for TO-263 package)
- Solder bath temperature 275°C maximum, 10s, per JESD22-B106 (for TO-220AB and ITO-220AB package)
- Component in accordance to RoHS 2011/65/EU



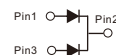
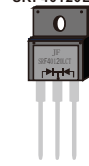
TO-220AB

SR40120LCT



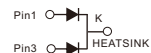
ITO-220AB

SRF40120LCT



TO-263

SR40120LD1



### MECHANICAL DATA

- Case: JEDEC TO-220AB、ITO-220AB、TO-263
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked
- Mounting Torque: 10 in-lbs maximum

### TYPICAL APPLICATIONS

For use in low voltage ,high frequency inverters ,DC/DC converters, free wheeling ,and polarity protection applications

### MAXIMUM RATINGS

(Ratings at 25°C ambient temperature unless otherwise specified )

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	120	V
Maximum average forward rectified current (see fig.1)	Per leg	20.0	A
	Total device	40.0	
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)	I <sub>FSM</sub>	300	A
Peak repetitive reverse current per diode at tp=2 μs 1 KHz	I <sub>RRM</sub>	0.5	A
Operating junction and Storage temperature range	T <sub>J</sub> ,T <sub>stg</sub>	-55 to+150	°C
Isolation voltage (ITO-220AB only) from terminals to heatsink t=1 min	V <sub>AC</sub>	1500	V

PRIMARY CHARACTERISTICS	
I <sub>F(AV)</sub>	2×20A
V <sub>RRM</sub>	120V
I <sub>FSM</sub>	300A
V <sub>F</sub> at I <sub>F</sub> =20.0A,Per leg	0.74V
I <sub>R</sub>	17 μ A
T <sub>J</sub> (MAX)	150°C
Package	TO-220AB,ITO-220AB, TO-263
Diode variations	Common cathode

## RATINGS AND CHARACTERISTIC OF SR40120LCT,SRF40120LCT,SR40120LD1

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C Unless otherwise noted)

Parameter	Test Conditions		Symbol	Typ.	Max.	Unit
Instantaneous forward voltage	Per leg T <sub>A</sub> =25°C	I <sub>F</sub> =3A	V <sub>F</sub> <sup>1)</sup>	0.44	–	V
		I <sub>F</sub> =5A		0.49	–	
		I <sub>F</sub> =15A		0.67	–	
		I <sub>F</sub> =20A		0.74	0.80	
	Per leg T <sub>A</sub> =125°C	I <sub>F</sub> =3A		0.35	–	
		I <sub>F</sub> =5A		0.42	–	
		I <sub>F</sub> =15A		0.59	–	
		I <sub>F</sub> =20A		0.63	–	
Reverse current	V <sub>R</sub> =120V	T <sub>A</sub> =25°C	I <sub>R</sub> <sup>2)</sup>	17	50	μA
		T <sub>A</sub> =125°C		10	30	mA
Typical junction capacitance	4V, 1MHz		C <sub>J</sub>	1000		pF

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle

2.Pulse test: pulse width≤40ms

### THERMAL CHARACTERISTICS

Parameter	Symbol	SR40120LCT	SRF40120LCT	SR40120LD1	Unit
Typical thermal resistance <sup>3)</sup>	R <sub>θJC</sub>	0.8	3.5	0.8	°C/W

3.Thermal resistance from junction to case

### AVAILABLE PACK INFORMATION

Product code	Pack	Box Size L×W×H (mm)	Quantity (pcs/box)	Carton Size L×W×H (mm)	Quantity (box/carton)
SR40120LCT-TO-220AB	P/T	558×148×38	1000	565×225×170	5
SRF40120LCT-ITO-220AB	P/T	558×148×38	1000	565×225×170	5
SR40120LD1-TO-263	P/T	558×148×38	1000	565×225×170	5

# RATINGS AND CHARACTERISTIC OF SR40120LCT,SRF40120LCT,SR40120LD1

FIG.1-FORWARD CURRENT DERATING CURVE

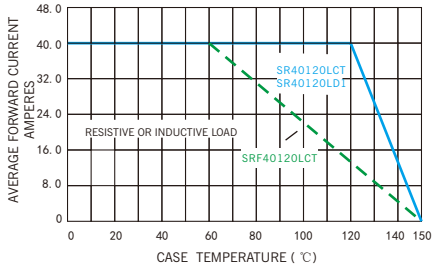


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

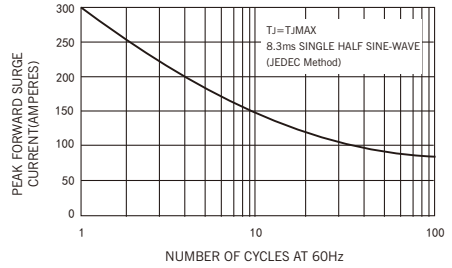


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

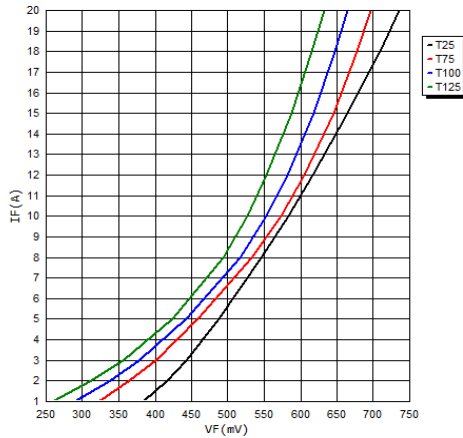


FIG.4-TYPICAL REVERSE CHARACTERISTICS

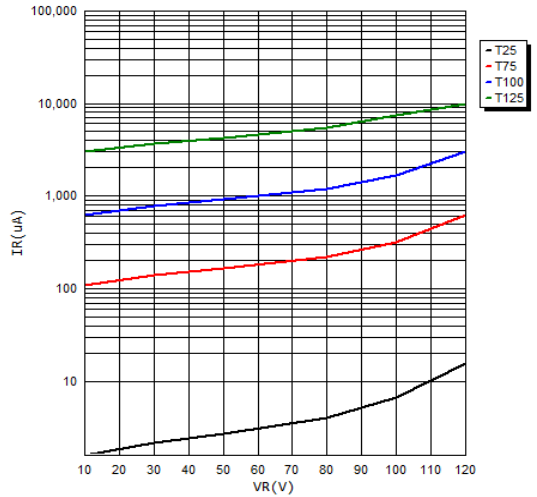
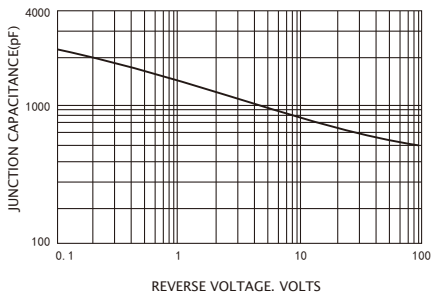
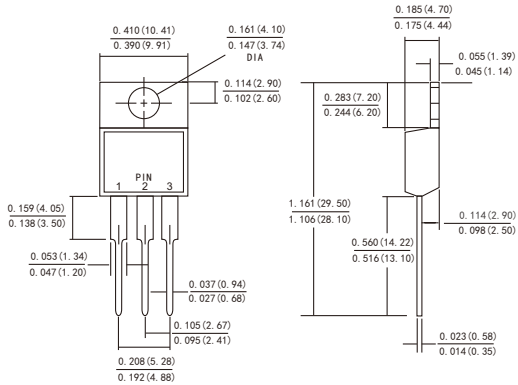


FIG.5-TYPICAL JUNCTION CAPACITANCE

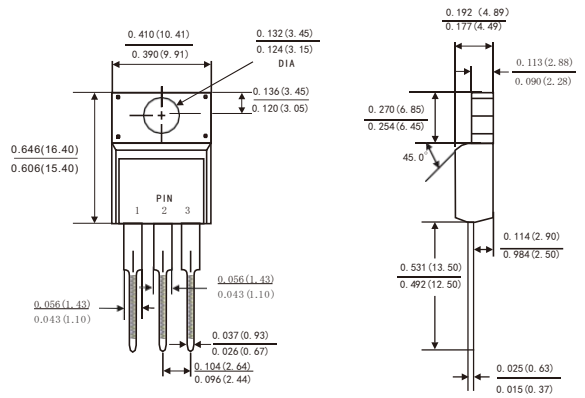


# PACKAGE OUTLINE DIMENSIONS

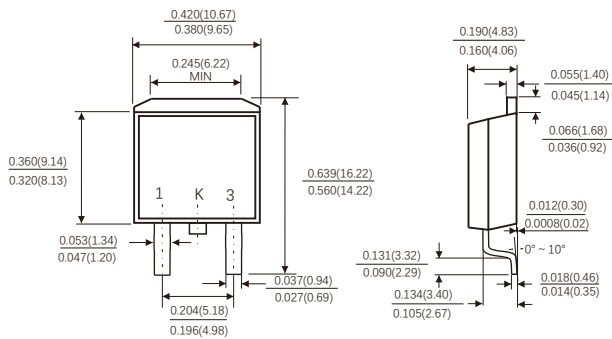
## TO-220AB



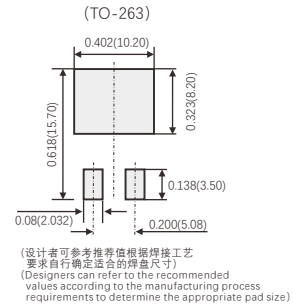
## ITO-220AB



## TO-263



## Suggested Pad Layout



Dimensions in inches and (millimeters)