SEMICONDUCTOR

MURFS8120,MURS8120,MURS8120D2, MURS8120M2

POLYIMIDE PASSIVATED SUPER FAST RECTIFIER

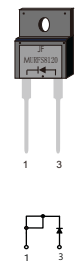
Reverse Voltage - 1200 Volts
Forward Current - 8.0Amperes

FEATURES

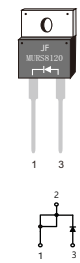
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Ultrafast and soft recovery time for high efficiency
- Low VF ,Low power loss
- Polyimide passivation
- High surge capability
- Meets JESD 201 class 2 whisker test
- High temperature soldering guaranteed:260℃/10 seconds at terminals
- Component in accordance to RoHS 2011/65/EU

Rb
RoHS
COMPLIANT

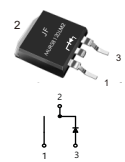
ITO-220AC
MURFS8120



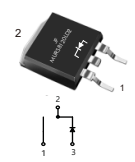
TO-220AC
MURS8120



TO-252
MURS8120M2



TO-263
MURS8120D2



MECHANICAL DATA

- Case: JEDEC TO-263AC,TO−252AC, ITO-220AC,TO-220AC molded plastic body
- Terminals: Lead solderable per MIL-STD-750,method 2026
- Polarity: As marked
- Mounting Position: Any

TYPICAL APPLICATIONS

For use in boost stage in SMPS
high frequency inverters for solar inverters
DC/DC converters
high frequency output rectification of battery chargers
free wheeling diodes in motor drivers

PRIMAR Y CHARACTERISTICS	
$I_{F(AV)}$	8.0A
V_R	1200V
I_{FSM}	80A
V_F at I_F=8.0A	3.3V
Trr typ	30ns
T_{JMAX}	175℃
Diode variation	Sigle die

MAXIMUM RATINGS

(Ratings at 25℃ ambient temperature unless otherwise specified)

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	1200	V
Maximum average forward rectified current	$I_{F(AV)}$	8.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated T_L)	I_{FSM}	80	A
Operating junction temperature range	T_J	-55 to+175	℃
Storage temperature range	T_{stg}	-55 to+175	℃

RATINGS AND CHARACTERISTIC OF MURFS8120,MURS8120,MURS8120D2,MURS8120M2

ELECTRICAL CHARACTERISTCS（T_J=25℃ Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Breakdown voltage Blocking voltage	IR=200μA		V_{BR} V_R	1200	–	–	V
Instaneous forward voltage	T_J=25℃	I_F=1.0A	V_F 1)	–	1.80	–	V
		I_F=3.0A		–	2.40	–	
		I_F=8.0A		–	3.00	3.30	
	T_J=125℃	I_F=1.0A		–	1.10	–	
		I_F=3.0A		–	1.60	–	
		I_F=8.0A		–	2.30	–	
Reverse current	T_J=25℃	V_R=1200V	I_R 2)	–	0.1	5	μA
	T_J=100℃			–	10	–	μA
	T_J=125℃			–	30	50	
Junction capacitance	4V,1MHz		C_J	–	26	–	pF

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

2.Pulse test: pulse width≤40ms

DYNAMIC RECOVERY CHARACTERISTCS（T_J=25℃ Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Reverse recovery time	I_F=1.0A,dI_F/dt=50A/μs,V_R=30V		trr		30		ns
	T_J=25℃	I_F=8A dI_F/dt=100A/μS V_R=390V			50		
	T_J=125℃				125		
Peak recovery current	T_J=25℃		I_{RRM}		2.5		A
	T_J=125℃				5.0		
Reverse recovery charge	T_J=25℃		Qrr		68		nc
	T_J=125℃				150		

RATINGS AND CHARACTERISTIC OF MURFS8120, MURS8120, MURS8120D2, MURS8120M2

THERMAL CHARACTERISTCS

Parameter	Symbol	TO-263,TO-252, TO-220AC	ITO-220AC	Unit
Typical thermal resistance	$R_{\theta JC}$	2.5	4.5	℃/W

3.Thermal resistance from junction to case

AVAILABALE PACK INFORMATION

Product code	Pack	Box Size L×W×H(mm)	Quantity (pcs/box)	Carton SizeL×W×H(mm)	Quantity (box/carton)
MURS8120D2-TO-263AC	P/T	558×148×38	1000	565×225×170	5
MURFS8120 -ITO-220AC	P/T	558×148×38	1000	565×225×170	5
MURS8120 -TO-220AC	P/T	558×148×38	1000	565×225×170	5
MURS8120M2-TO-252AC	T/R	346×346×23	2500	364×364×250	10

FIG.1-FORWARD CURRENT DERATING CURVE

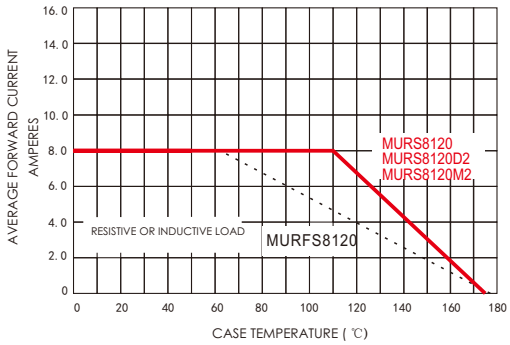


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

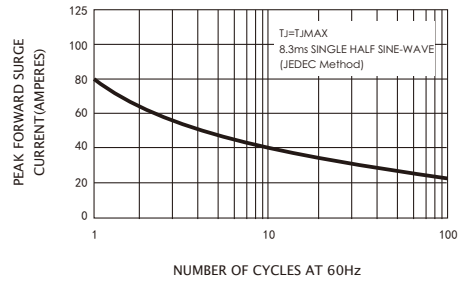


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

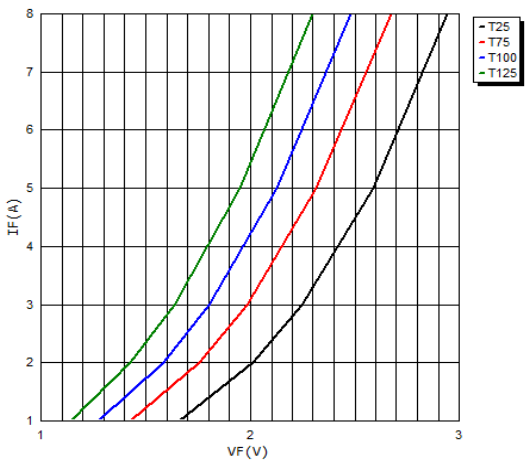


FIG.4-TYPICAL REVERSE CHARACTERISTICS

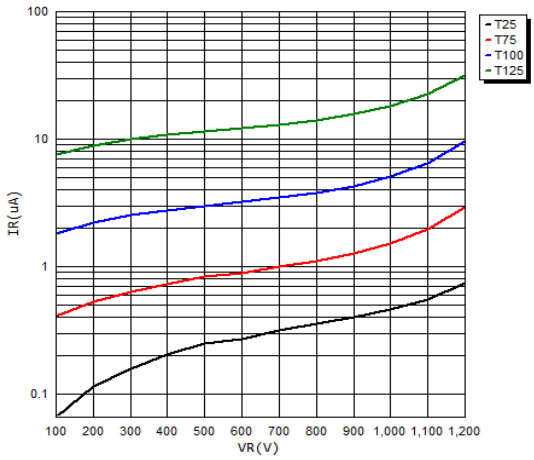
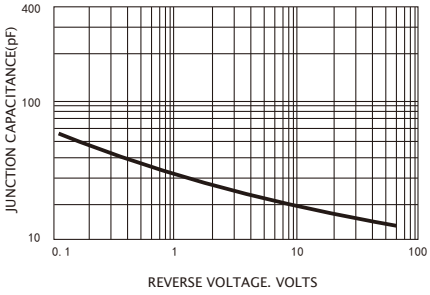
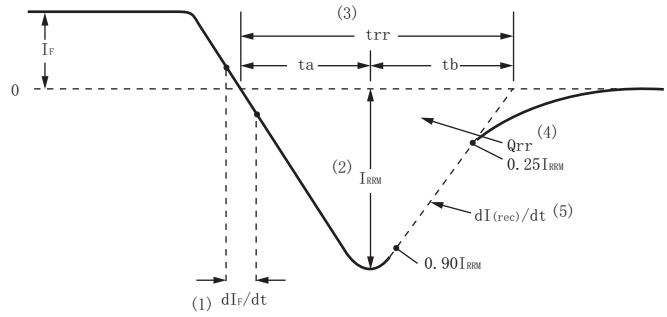


FIG.5-TYPICAL JUNCTION CAPACITANCE





(1) dIF/dt-rate of change of current through zero crossing

(2) IRRM-peak reverse recovery current

(3) trr- reverse recovery time measured from zero crossing point of negative going IF to point where a line passing through 0.90IRRM and 0.25IRRM extrapolated to zero current

(4) Qrr- aera under curve defined by trr and IRRM

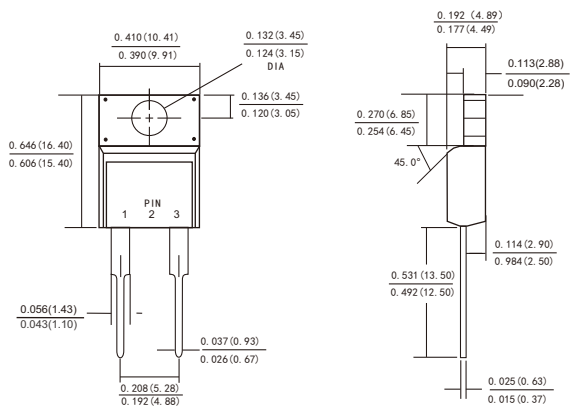
$$Qrr = \frac{t_{rr} \times I_{RRM}}{2}$$

(5) $dI_{(REC)}/d_t$-peak rate of change of current during tb portion of trr

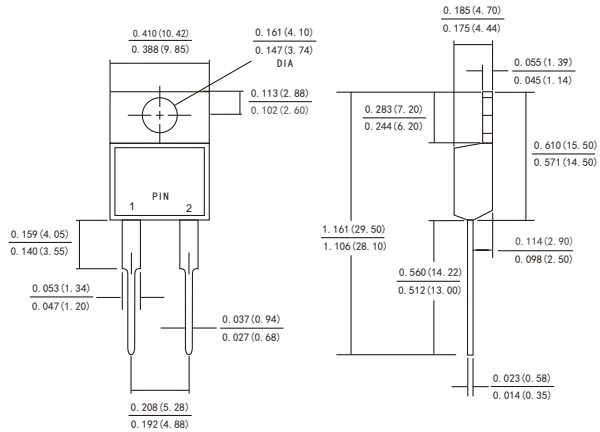
Fig. 6 – Reverse Recovery Waveform and Definitions

PACKAGE OUTLINE DIMENSIONS

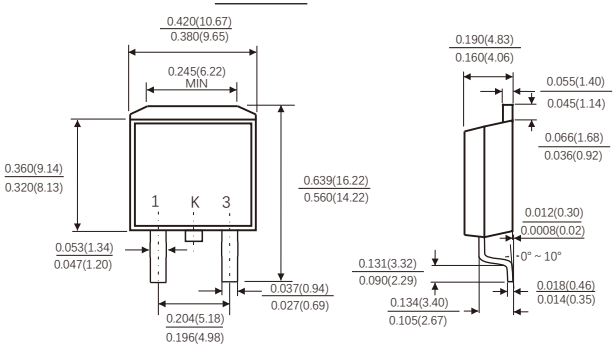
ITO-220AC



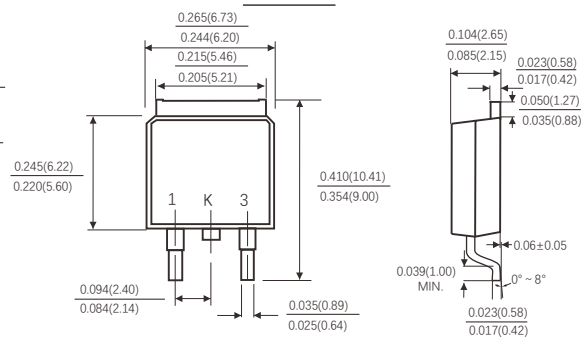
TO-220AC



TO-263

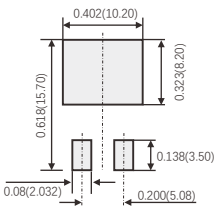


TO-252



Suggested Pad Layout

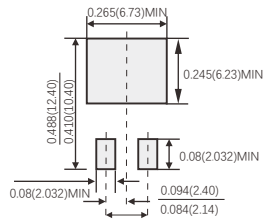
(TO-263)



(设计者可参考推荐值根据焊接工艺
要求自行确定适合的焊盘尺寸)
(Designers can refer to the recommended
values according to the manufacturing process
requirements to determine the appropriate pad size)

Suggested Pad Layout

(TO-252)



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