

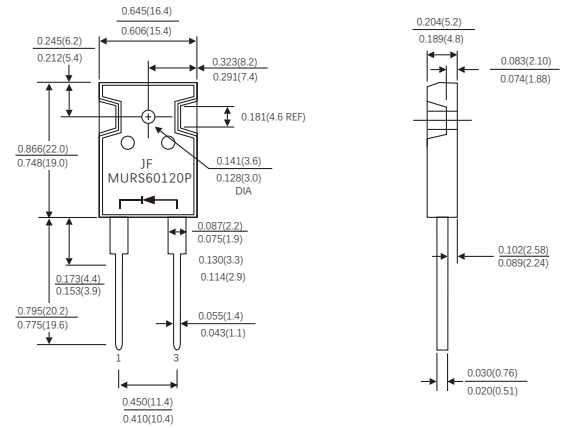
## FEATURES

- Fred Chip Planar Construction
- Super Fast Switching,High Efficiency
- Low Power loss, High Efficiency
- Low Reverse Leakage Current
- High Surge Current Capability
- Plastic Material has UL Flammability Classification 94V-0

## TO-247AC

## MECHANICAL DATA

- Case: JEDEC TO-247AC molded plastic body
- Terminals: Lead solderable per MIL-STD-750.method 2026
- Polarity: As marked
- Mounting Position: Any
- weight: 2.24g(Approx.)

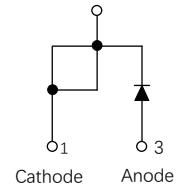


Dimensions in inches and (millimeters)

## 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

Base common cathode



## MAXIMUM RATINGS

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

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	$V_{RRM}$	1200	V
Maximum average forward rectified current	$I_{F(AV)}$	60.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated $T_L$ )	$I_{FSM}$	500	A
Operating junction temperature range	$T_j$	-55 to+175	°C
Storage temperature range	$T_{STG}$	-55 to+175	°C

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

Parameter	Test Conditions		Symbol	Min.	Typ .	Max .	Unit
Breakdown voltage Blocking voltage	I <sub>R</sub> =200 μA		V <sub>BR</sub> V <sub>R</sub>	1200	-	-	
Instaneous forward voltage	T <sub>J</sub> =25°C	I <sub>F</sub> =60A	V <sub>F</sub> <sup>1)</sup>	-	2.7	3.2	V
	T <sub>J</sub> =125°C			-	2.1	3.0	
Reverse current	T <sub>J</sub> =25°C	V <sub>R</sub> =1200V	I <sub>R</sub> <sup>2)</sup>	-	10	100	μA
	T <sub>J</sub> =125°C			-	50	300	

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

2.Pulse test: pulse width ≤40ms

## DYNAMIC RECOVERY CHARACTERISTCS (T<sub>J</sub>=25°C Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ .	Max .	Unit
Reverse recovery time	I <sub>F</sub> =0.5A,I <sub>R</sub> =1A,I <sub>RR</sub> =0.25A		trr	-	60	80	ns
	I <sub>F</sub> =1.0A,dI <sub>F</sub> /dt=100A/μs,V <sub>R</sub> =30V			-	30	-	
				-	320	-	
Peak recovery current	I <sub>F</sub> =60A dI <sub>F</sub> /dt =200A/μS V <sub>R</sub> =800V		I <sub>RRM</sub>	-	5	-	A
Reverse recovery charge			Q <sub>rr</sub>	-	630	-	nc

## THERMAL CHARACTERISTCS

Parameter	Symbol	TO-247AC	Unit
Typical thermal resistance <sup>3)</sup>	R <sub>θJC</sub>	0.4	°C/W

3.Thermal resistance from junction to case

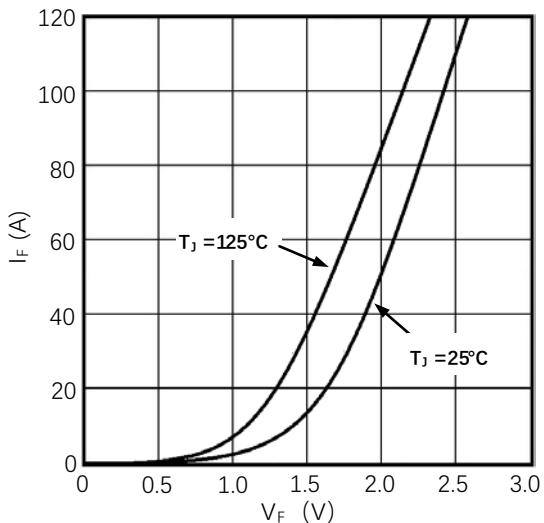


Figure1. Forward Voltage Drop vs Forward Current

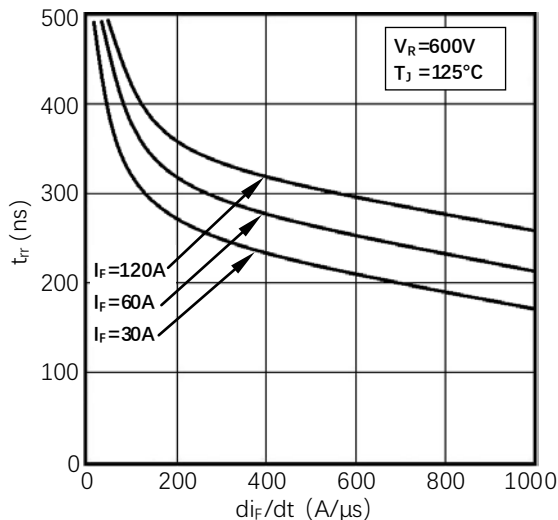


Figure 2. Reverse Recovery Time vs  $di_F/dt$

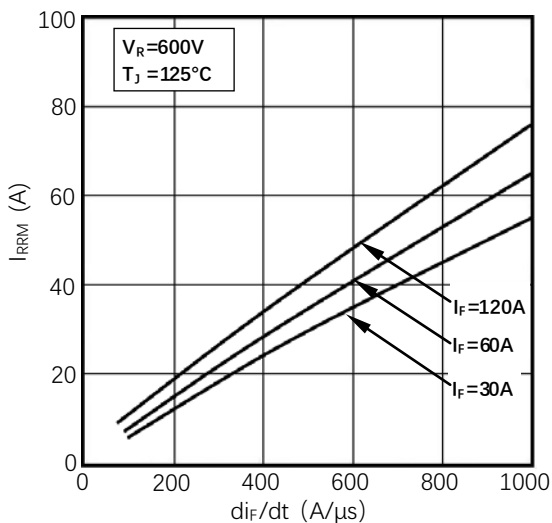


Figure 3. Reverse Recovery Current vs  $di_F/dt$

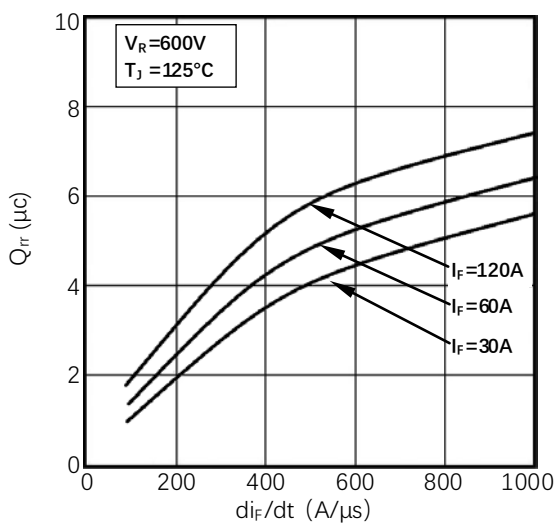


Figure 4. Reverse Recovery Charge vs  $di_F/dt$

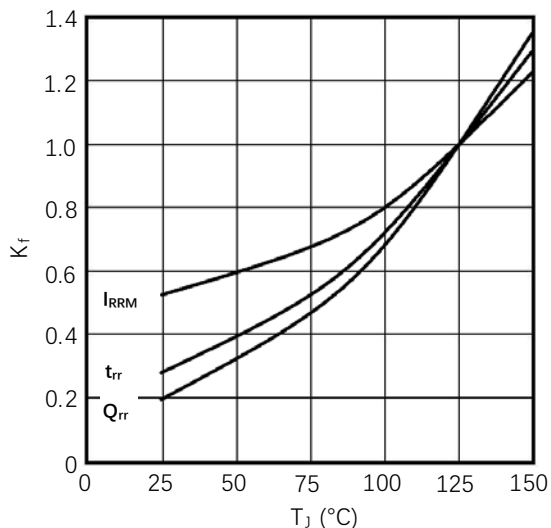


Figure 5. Dynamic Parameters vs Junction Temperature

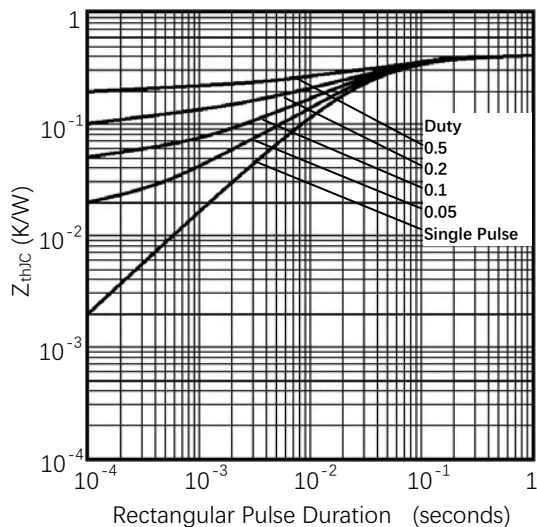
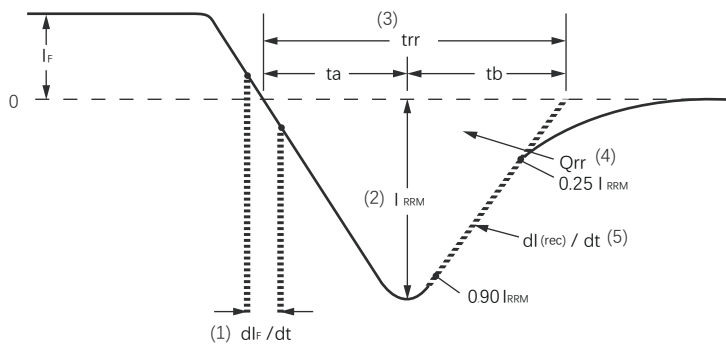


Figure 6. Transient Thermal Impedance



- (1)  $dI_F/dt$ -rate of change of current through zero crossing
  - (2)  $I_{RRM}$ -peak reverse recovery current
  - (3)  $t_{rr}$ - reverse recovery time measured from zero crossing point of negative going  $I_F$  to point where a line passing through  $0.90I_{RRM}$  and  $0.25I_{RRM}$  extrapolated to zero current
  - (4)  $Q_{rr}$ - aera under curve defined by  $t_{rr}$  and  $I_{RRM}$
- $$Q_{rr} = \frac{t_{rr} \times I_{RRM}}{2}$$
- (5)  $dI_{(rec)}/dt$ -peak rate of change of current during  $t_b$  portion of  $t_{rr}$

Figure.7 - Reverse Recovery Waveform and Definitions

## Friendship Reminder

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