

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Ultrafast Recovery Characteristics
- Low forward voltage drop
- Low Reverse Leakage Current
- Soft Recovery Characteristics
- High temperature soldering guaranteed:260°C/10 seconds, 0.25"(6.35mm)from case
- Component in accordance to RoHS 2015/863/EU

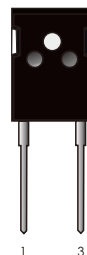
MECHANICAL DATA

- Case: TO-247AC molded plastic body
- Terminals: Lead solderable per MIL-STD-750,method 2026
- Polarity: As marked
- Mounting Position: Any

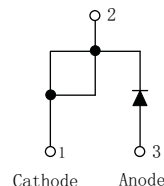
APPLICATIONS

- Anti-Parallel Diode
 - Switching Power Supply
 - Inverters
- Free wheeling Diode
 - Motor Controller
 - Converters
 - Inverters
- PFC
- Snubber, Clamp diode

TO-247AC



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}	600	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_J)	I_{FSM}	600	A
Operating junction temperature range	T_J	-55 to+175	°C
Storage temperature range	T_{stg}	-55 to+175	°C

RATINGS AND CHARACTERISTIC OF MURS6060P

ELECTRICAL CHARACTERISTICS (T_J=25°C Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Breakdown voltage Blocking voltage	I _R =100μA		V _{BR} V _R	600	–	–	V
Instaneous forward voltage	T _J =25°C	I _F =5.0A	V _F ¹⁾	–	0.87	–	V
		I _F =20.0A		–	1.10	–	
		I _F =60.0A		–	1.30	1.70	
	T _J =125°C	I _F =5.0A		–	0.65	–	
		I _F =20.0A		–	0.90	–	
		I _F =60.0A		–	1.21	–	
Reverse current	T _J =25°C	V _R =600V	I _R ²⁾	–	0.2	5	μ A
	T _J =100°C			–	5.0	–	μ A
	T _J =125°C			–	23.0	50	
Junction capacitance	4V, 1MHz		C _J	–	470	–	pF

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

2.Pulse test: pulse width ≤ 40ms

DYNAMIC RECOVERY CHARACTERISTICS (T_J=25°C Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Reverse recovery time	I _F =0.5A, I _R =1.0A, I _{RR} =0.25A		I _{rr}	–	48	70	ns
	T _J =25°C	I _F =30A dI _F /dt=200A/μS V _R =400V		–	106	–	
	T _J =125°C			–	150	–	
Peak recovery current	T _J =25°C		I _F =30A dI _F /dt=200A/μS V _R =400V	I _{RRM}	–	4.5	–
	T _J =125°C	–			7.5	–	
Reverse recovery charge	T _J =25°C	I _F =30A dI _F /dt=200A/μS V _R =400V	Q _{rr}	–	280	–	nC
	T _J =125°C			–	600	–	

RATINGS AND CHARACTERISTIC OF MURS6060P

THERMAL CHARACTERISTICS

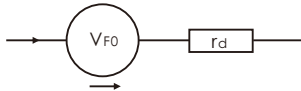
Parameter	Symbol	TO-247AC	Unit
Typical thermal resistance ³⁾	$R_{\theta JC}$	0.44 Typ. 0.90 MAX	$^{\circ}\text{C}/\text{W}$

3.Thermal resistance from junction to case

AVAILABLE PACK INFORMATION

Product code	Pack	Box Size L×W×H(mm)	Quantity (pcs/box)	Carton SizeL×W×H(mm)	Quantity (box/carton)
MURS6060P-TO-247AC	P/T	530×110×60	360	550×330×130	5

Equivalent circuits for power loss calculation



V_{F0} : threshold voltage 0.95V

r_d : Dynamic resistance 0.0073 Ω

Forward power loss of diode= $V_{F0} \times I_F(AV) + r_d \times I_F^2(RMS)$

FIG.1-FORWARD CURRENT DERATING CURVE

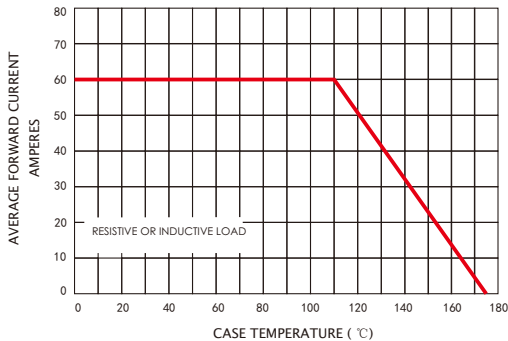
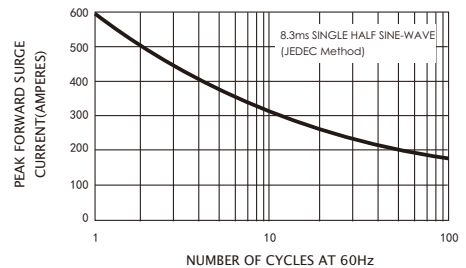


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



RATINGS AND CHARACTERISTIC OF MURS6060P

FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

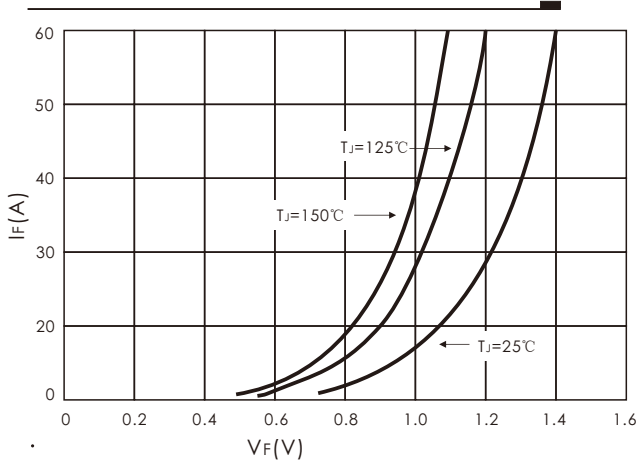


FIG.4-TYPICAL REVERSE CHARACTERISTICS

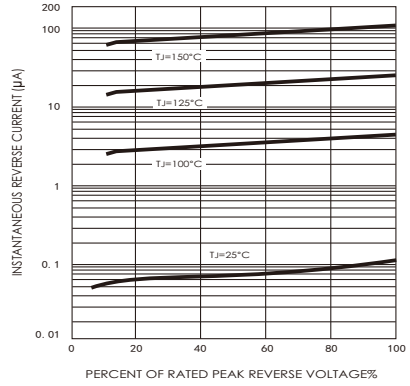


FIG.5-TYPICAL JUNCTION CAPACITANCE

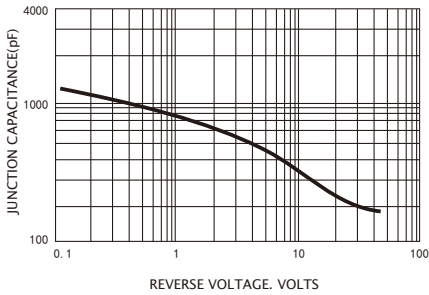


FIG.6- TYPICAL REVERSE RECOVERY TIME vs. dI_F/dt

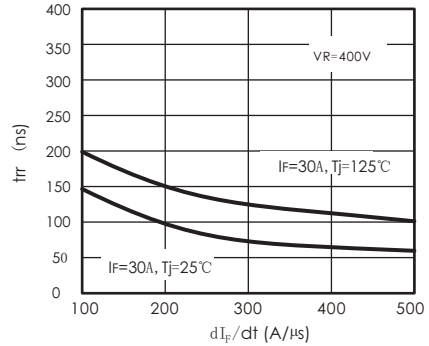


FIG.7- TYPICAL STORED CHARGE VS. dI_F/dt

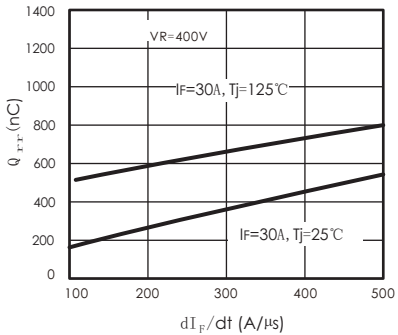
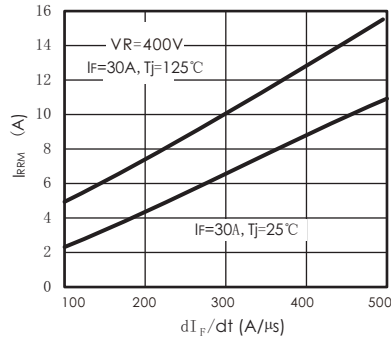
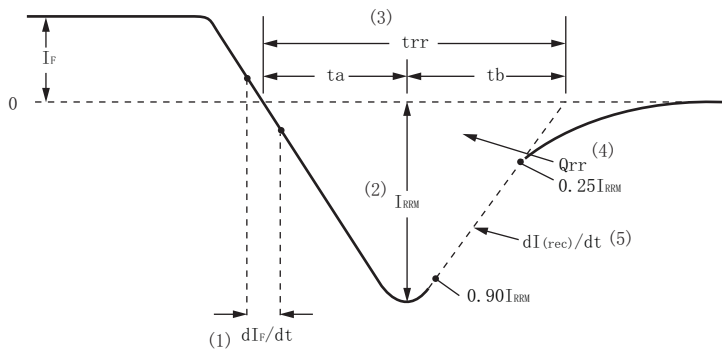
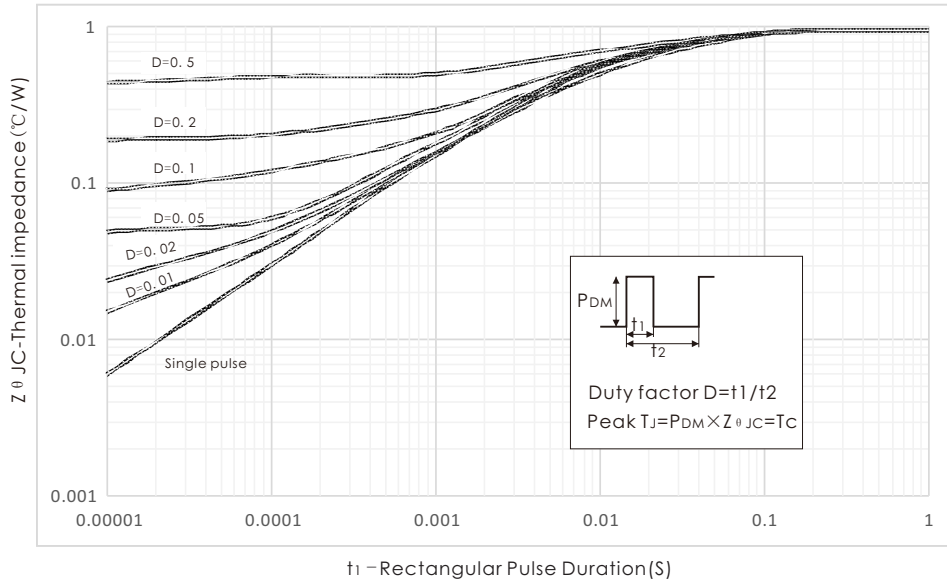


FIG.8- TYPICAL REVERSE RECOVERY CURRENT VS. dI_F/dt



RATINGS AND CHARACTERISTIC OF MURS6060P

FIG.9- Maximum Thermal Impedance $Z_{\theta JC}$ characteristics



- (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} -area under curve defined by t_{rr} and I_{RRM}

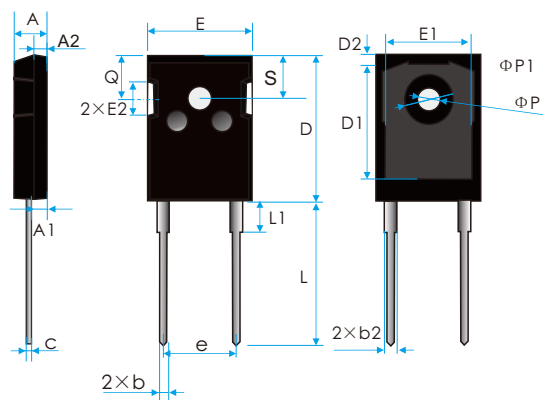
$$Q_{rr} = \frac{t_{rr} \times I_{RRM}}{2}$$

- (5) $dI_{(rec)}/dt$ -peak rate of change of current during t_b portion of t_{rr}

Fig. 10 - Reverse Recovery Waveform and Definitions

PACKAGE OUTLINE DIMENSIONS

TO-247AC



Symbol	millimeter		
	Min.	Typ.	MAX
A	4.70		5.30
A1	2.21		2.59
A2	1.50		2.49
D	20.30		20.70
E	15.48		16.24
E2	4.30		5.50
e		10.92	
L	19.80		20.30
L1	4.40		4.60
ΦP		3.50	
Q	5.38		6.19
S		6.14	
b	0.99		1.40
b2	1.65		2.39
c	0.38		0.89
D1	13.07		
D2	0.51		1.35
E1	13.45		
ΦP1		7.20	