

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

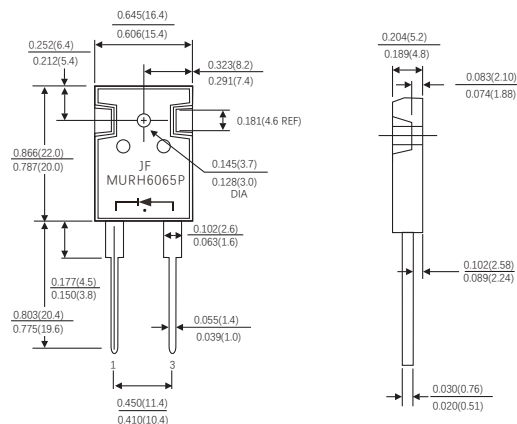
- Anti - Parallel Diode
 - Switching Power Supply
 - Inverters
- Free wheeling Diode
 - Motor Controller
 - Converters
 - Inverters
- PFC
- Snubber, Clamp diode

MAXIMUM RATINGS

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

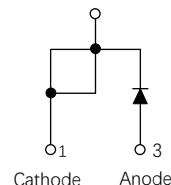
Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	650	V
Maximum average forward rectified current	$I_{F(AV)}$	60.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated T_J)	I_{FSM}	540	A
Operating junction temperature range	T_J	-55 to+175	°C
Storage temperature range	T_{STG}	-55 to+175	°C

TO-247AC



Dimensions in inches and (millimeters)

Base common cathode



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	650	-	-	V
Instaneous forward voltage	T _J =25°C	I _F =5.0A	V _F ¹⁾	-	1.00	-	V
		I _F =20.0A		-	1.38	-	
		I _F =60.0A		-	1.80	2.40	
	T _J =125°C	I _F =5.0A		-	0.71	-	
		I _F =20.0A		-	1.03	-	
		I _F =60.0A		-	1.50	-	
Reverse current	T _J =25°C	V _R =650V	I _R ²⁾	-	0.2	10	μA
	T _J =100°C			-	7.0	-	μA
	T _J =125°C			-	30.0	100	
Junction capacitance	4V,1MHz		C _J	-	400	-	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		t _{rr}	-	45	55	ns
	T _J =25°C	I _F =30A dI _F /dt=200A/μS V _R =400V		-	37	-	
	T _J =125°C			-	196	-	
Peak recovery current	T _J =25°C	I _F =30A dI _F /dt=200A/μS V _R =400V	I _{RRM}	-	4.2	-	A
	T _J =125°C			-	10.9	-	
Reverse recovery charge	T _J =25°C	I _F =30A dI _F /dt=200A/μS V _R =400V	Q _{rr}	-	85	-	nC
	T _J =125°C			-	936	-	

THERMAL CHARACTERISTICS

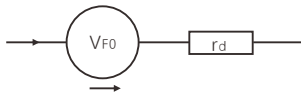
Parameter	Symbol	TO-247AC	Unit
Typical thermal resistance ³⁾	$R_{\theta jc}$	0.44 Typ. 0.90 MAX	°C/W

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)
MURH6065P-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 0.021Ω

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

FIG.1- FORWARD CURRENT DERATING CURVE

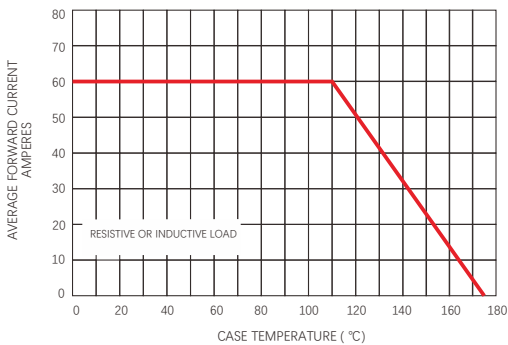


FIG.2- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

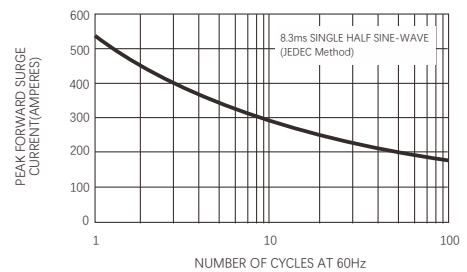


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

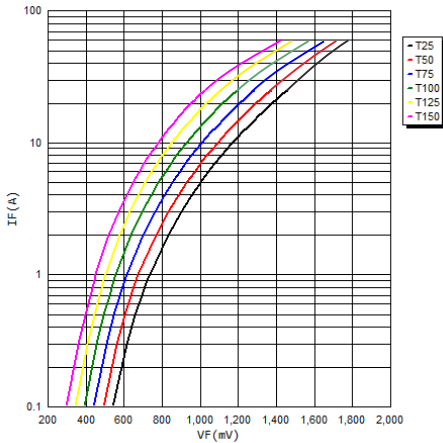


FIG.4-TYPICAL REVERSE CHARACTERISTICS

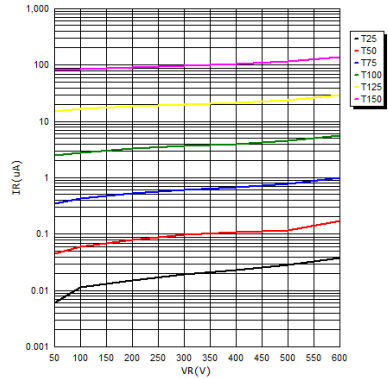


FIG.5-TYPICAL JUNCTION CAPACITANCE

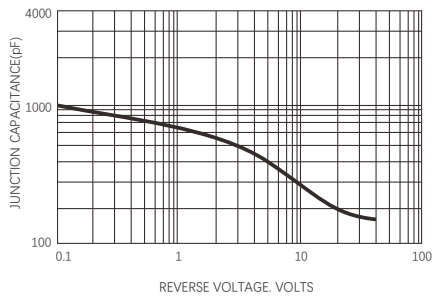


FIG.6- TYPICAL REVERSE RECOVERY TIME vs. di_f/dt

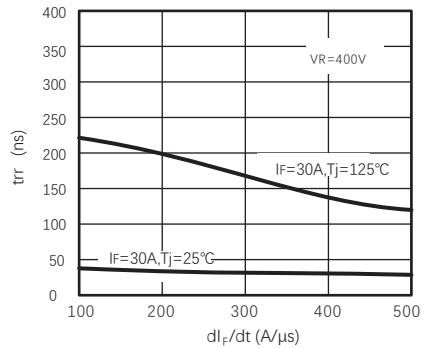


FIG.7- TYPICAL STORED CHARGE VS. di_f/dt

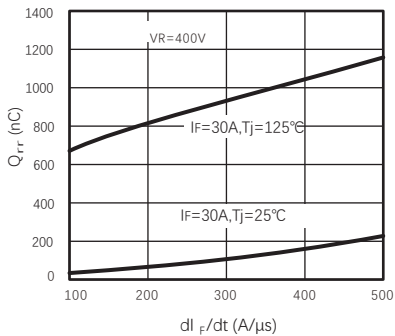


FIG.8- TYPICAL REVERSE RECOVERY CURRENT VS. di_f/dt

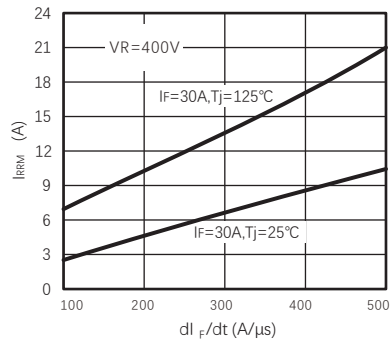
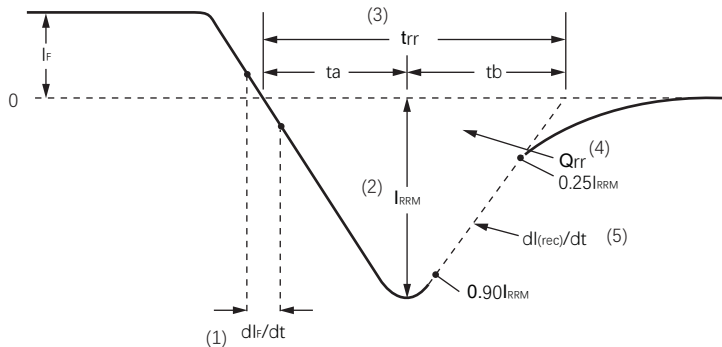
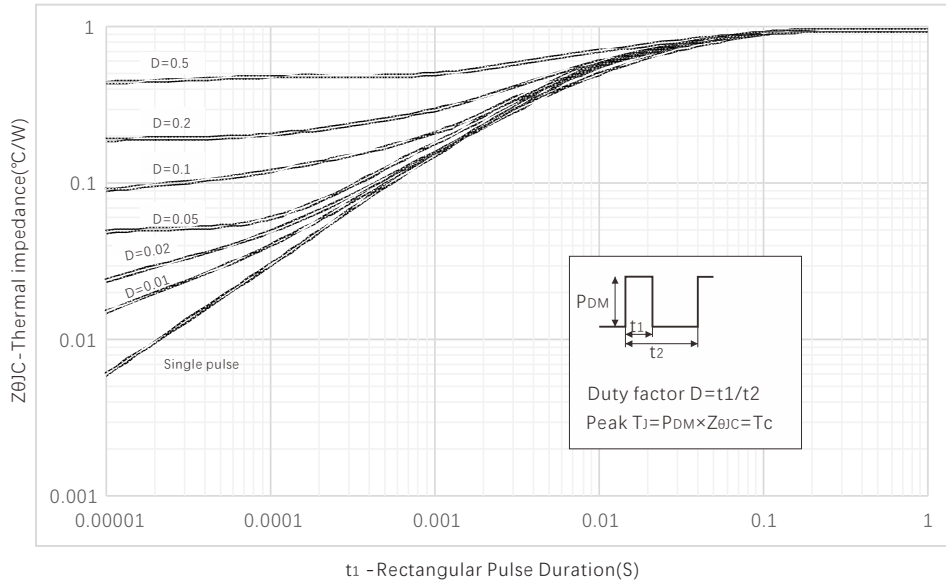


FIG.9- Maximum Thermal Impedance $Z_{\theta JC}$ characteristics



- (1) di/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) $dl_{(rec)}/dt$ -peak rate of change of current during t_b portion of t_{rr}

Fig.10 - Reverse Recovery Waveform and Definitions

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