



Features

- Adopt FRED chip
- Low forward Voltage drop
- Fast reverse recovery time
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability

Typical Applications

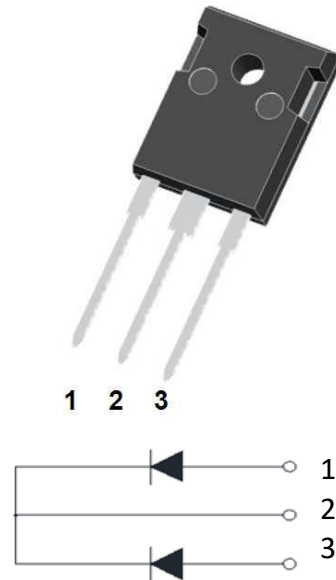
- Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

Mechanical Data

- **Package:** TO-247AB
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** As marked

	V _{RSM} V	V _{RRM} V
MUR6060PT	600	600

TO-247AB



■ Maximum Ratings (T_j=25°C Unless otherwise specified)

Symbol	Parameter			Value	Unit
V _{RRM}	Repetitive peak reverse voltage			600	V
I _{F(RMS)}	RMS forward voltage			60	A
I _{F(AV)}	Average forward current δ = 0.5	Tc = 125°C	Per diode	30	A
		Tc = 110°C	Per device	60	
		Tc = 100°C	Per diode	40	
		Tc = 80°C	Per device	80	
I _{FSM}	Surge non repetitive forward current	tp = 10ms sinusoidal		300	A
T _{stg}	Storage temperature range			-65 to + 175	°C
T _j	Maximum operating junction temperature			175	°C

Symbol	Parameter		Value (max).	Unit
R _{th(j-c)}	Junction to case	Per diode	1.05	°C/W
		Total	0.68	
R _{th(c)}	Coupling		0.3	°C/W

When the diodes 1 and 2 are used simultaneously:

$$\Delta T_j(\text{diode } 1) = P(\text{diode } 1) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode } 2) \times R_{th(c)}$$

■Electrical Characteristics

Symbol	Parameter	Test conditions		Min.	Typ	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			25	μA
		$T_j = 150^\circ\text{C}$			80	800	
V_F^{**}	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 30\text{A}$			1.65	V
		$T_j = 150^\circ\text{C}$			1.0	1.25	
		$T_j = 25^\circ\text{C}$	$I_F = 60\text{A}$			1.78	
		$T_j = 150^\circ\text{C}$			1.24	1.55	

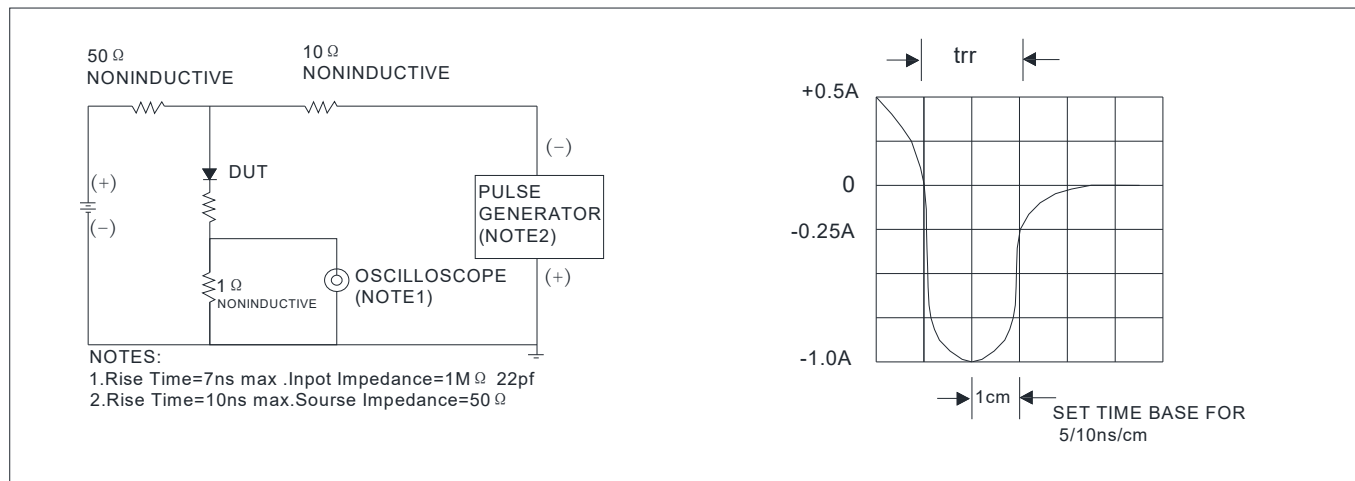
Pulse test: * $t_p = 5\text{ ms}$, $\delta < 2\%$

** $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the conduction losses use the following equation: $P = 0.95 \times I_F(AV) + 0.010 I_F^2(RMS)$

Symbol	Parameter	Test conditions		Min.	Typ	Max.	Unit
t_{rr}	Reverse recovery time	$T_j = 25^\circ\text{C}$	$I_F = 0.5\text{A}$ $I_{rr} = 0.25\text{A}$ $I_R = 1\text{A}$			65	ns
			$I_F = 1\text{A}$ $dI_F/dt = 50\text{ A}/\mu\text{s}$ $V_R = 30\text{V}$		65	90	
I_{RM}	Reverse recovery current	$T_j = 125^\circ\text{C}$	$I_F = 30\text{A}$ $V_R = 400\text{V}$ $dI_F/dt = 100\text{ A}/\mu\text{s}$		11.5	16	A
t_{fr}	Forward recovery time	$T_j = 25^\circ\text{C}$	$I_F = 30\text{A}$ $dI_F/dt = 100\text{ A}/\mu\text{s}$ $V_{FR} = 1.1 \times V_{Fmax}$			500	ns
V_{FP}	Forward recovery voltage	$T_j = 25^\circ\text{C}$	$I_F = 30\text{A}$ $dI_F/dt = 100\text{ A}/\mu\text{s}$ $V_{FR} = 1.1 \times V_{Fmax}$		2.5		V

FIG.5: Diagram of circuit and Testing wave form of reverse recovery time





■ Characteristics(Typical)

Figure 1: Conduction losses versus average forward current (per diode)

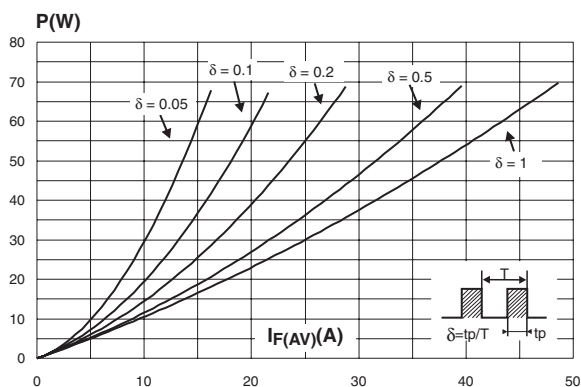


Figure 2: Forward voltage drop versus forward current (per diode)

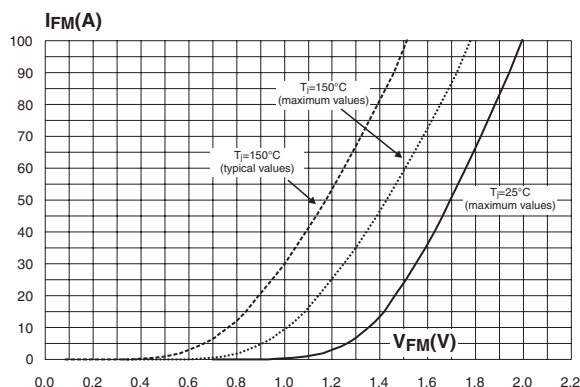


Figure 3: Relative variation of thermal impedance junction to case versus pulse duration

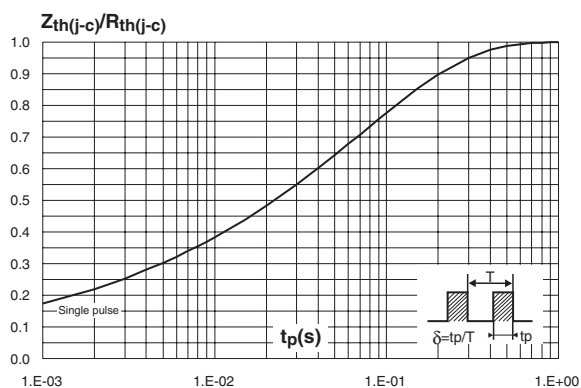


Figure 4: Peak reverse recovery current versus di_F/dt (typical values, per diode)

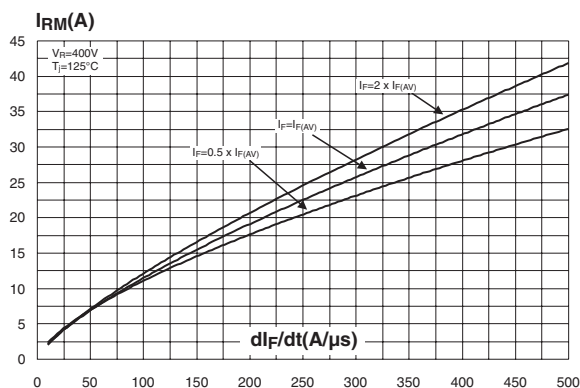


Figure 5: Reverse recovery time versus di_F/dt (typical values, per diode)

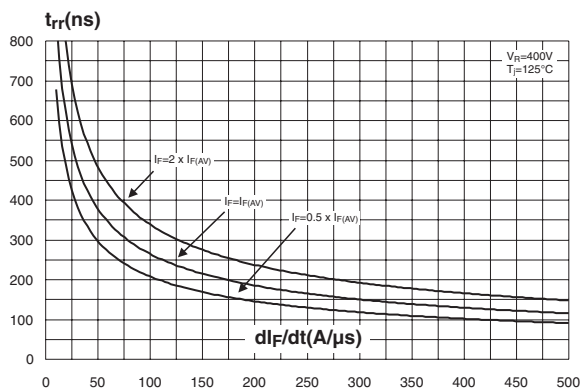


Figure 6: Reverse recovery charges versus di_F/dt (typical values, per diode)

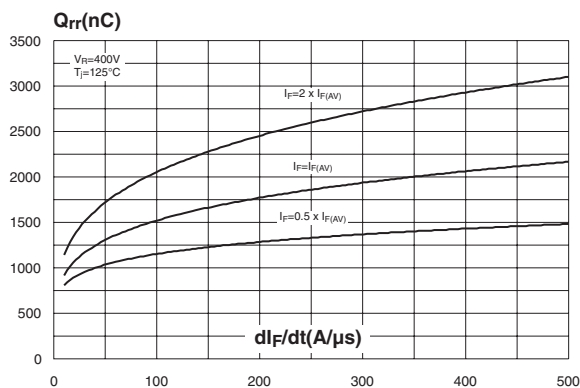


Figure 7: Reverse recovery softness factor versus dl_F/dt (typical values, per diode)

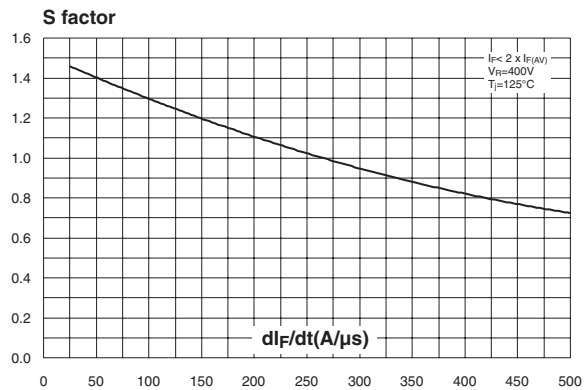


Figure 8: Relative variations of dynamic parameters versus junction temperature

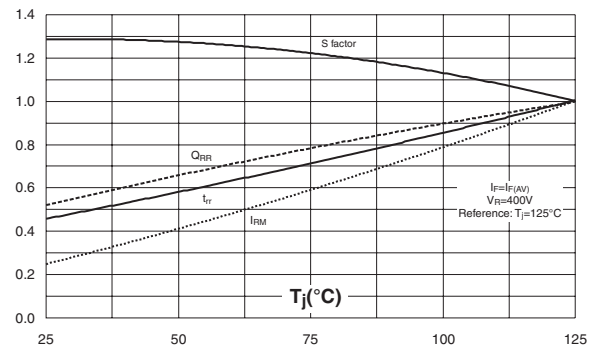


Figure 9: Transient peak forward voltage versus dl_F/dt (typical values, per diode)

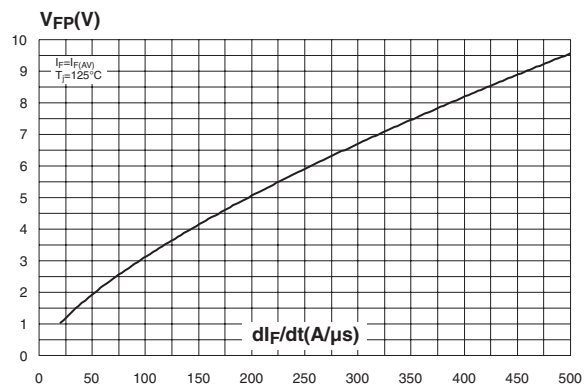


Figure 10: Forward recovery time versus dl_F/dt (typical values, per diode)

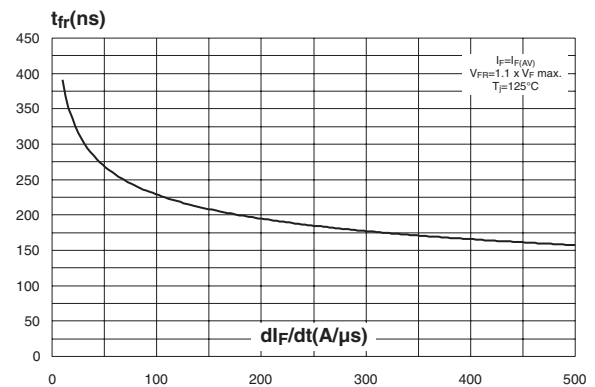
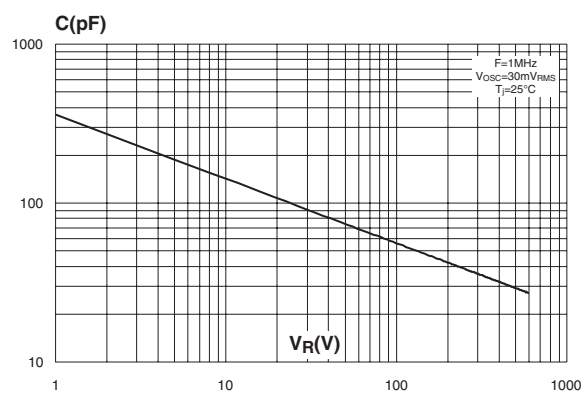
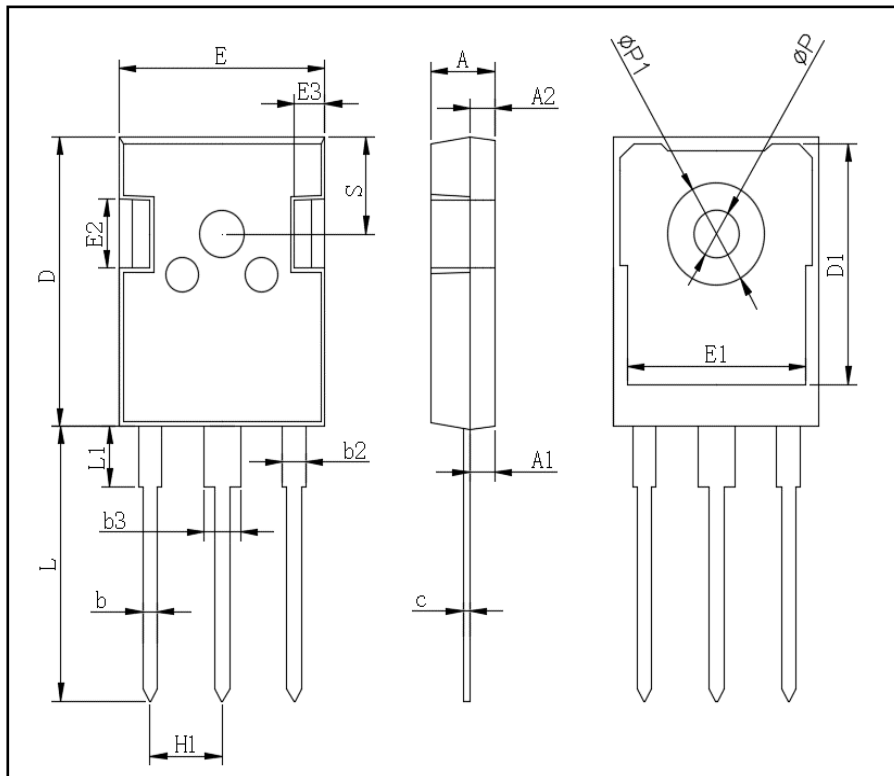


Figure 11: Junction capacitance versus reverse voltage applied (typical values, per diode)



■ Outline Dimensions



TO-247AB		
Dim	Min	Max
A	4.80	5.20
A1	2.21	2.61
A2	1.85	2.15
b	1.0	1.4
b2	1.91	2.21
C	0.5	0.7
D	20.70	21.30
D1	16.25	16.85
E	15.50	16.10
E1	13.0	13.6
E2	4.80	5.20
E3	2.30	2.70
L	19.62	20.22
L1	-	4.30
ΦP	3.40	3.80
$\Phi P1$	-	7.30
S	6.15TYP	
H1	5.44TYP	
b3	2.80	3.20

Package	Packing	Box Size L×W×H(mm)	Quantity(pcs/box)	Carton Size L×W×H(mm)	Quantity(pcs/carton)
TO-247	30pcs/Tube	570×155×50	450	580×340×125	1800