

## 30A,600V Ultrafast Recovery Rectifier

### Features

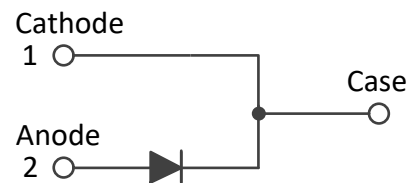
- FRED Wafer Construction
- Low forward drop voltage, low power loss
- High Surge Current Capability
- Plastic package has underwriters Laboratory Flammability Classification 94V-0
- Halogen-free according to IEC 61249-2-21



**TO-247AC**

### Applications

- SMPS
- Inverter
- UPS



### Mechanical Data

- Case: Epoxy, Molded
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 sec
- Shipped 30 units per plastic tube

### Maximum Ratings & Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	SMUR3060P	Unit
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	600	V
Working peak reverse voltage	V <sub>RWM</sub>	600	V
Maximum DC blocking voltage	V <sub>DC</sub>	600	V
Maximum average forward rectified current	I <sub>F(AV)</sub>	30	A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	300	A
Voltage rate of change (rated V <sub>R</sub> )	dv/dt	10000	V/uS
Operating junction temperature range	T <sub>J</sub>	-55 to +175	°C
Storage temperature range	T <sub>STG</sub>	-55 to +175	°C

<b>Electrical Specifications</b> ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)					
Parameter	Symbol	Test Conditions	Typ	Max	Unit
Forward drop voltage <sup>(Note1)</sup>	$V_F$	$I_F=30\text{A}, T_J=25^{\circ}\text{C}$	2.00	2.40	V
		$I_F=30\text{A}, T_J=125^{\circ}\text{C}$	-	2.10	
Reverse leakage current @ $V_R$ <sup>(Note2)</sup>	$I_R$	$T_J=25^{\circ}\text{C}$	-	10	$\mu\text{A}$
		$T_J=125^{\circ}\text{C}$	-	500	
Reverse recovery time	$t_{rr}$	$I_F=0.5\text{A},$ $I_R=1.0\text{A}, I_{RR}=0.25\text{A}$	-	50	ns

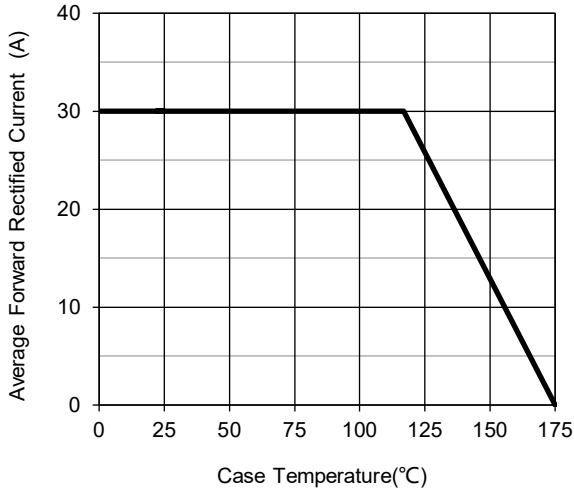
<b>Thermal-Mechanical Specifications</b> ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)			
Parameter	Symbol	Typ	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.8	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C}/\text{W}$

Note:

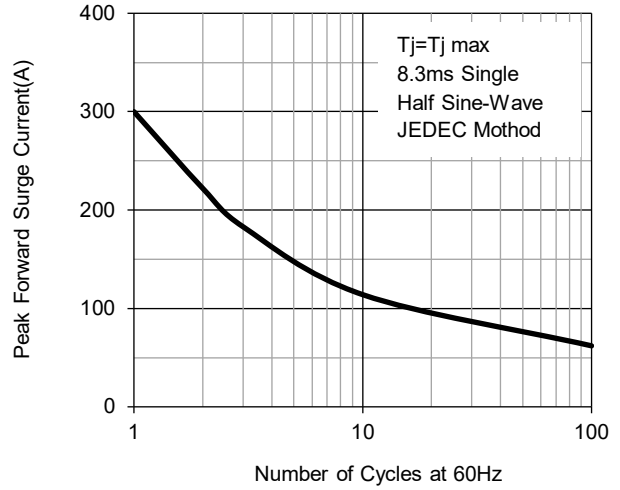
1. Pulse test with  $PW=0.3\text{ms}$ , duty cycle=2%
2. Pulse test with  $PW=30\text{ms}$

## Ratings and Characteristics Curves

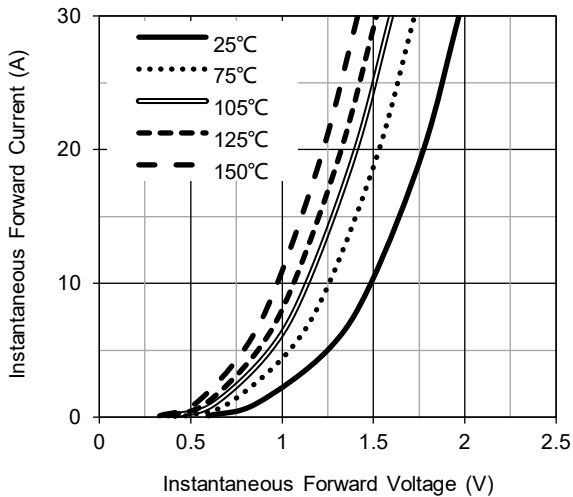
( $T_A = 25^\circ\text{C}$  unless otherwise noted)



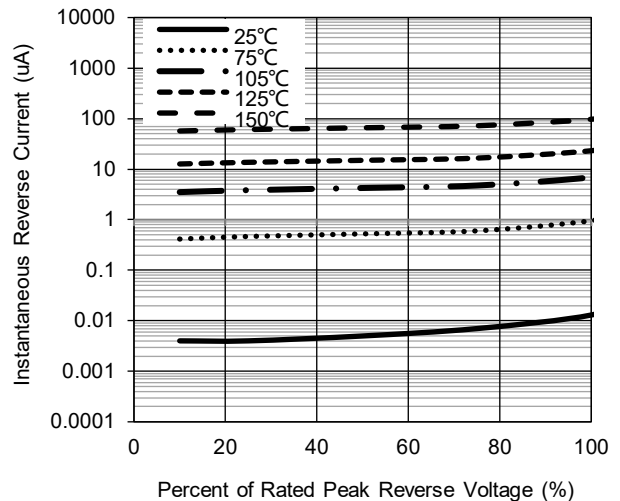
**Fig.1 – Forward Current Derating Curve**



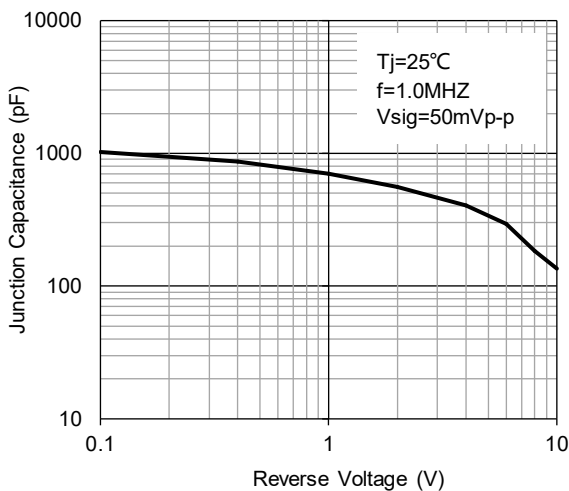
**Fig.2 – Maximum Non-Repetitive Surge Current**



**Fig.3 – Typical Forward Voltage Characteristics**



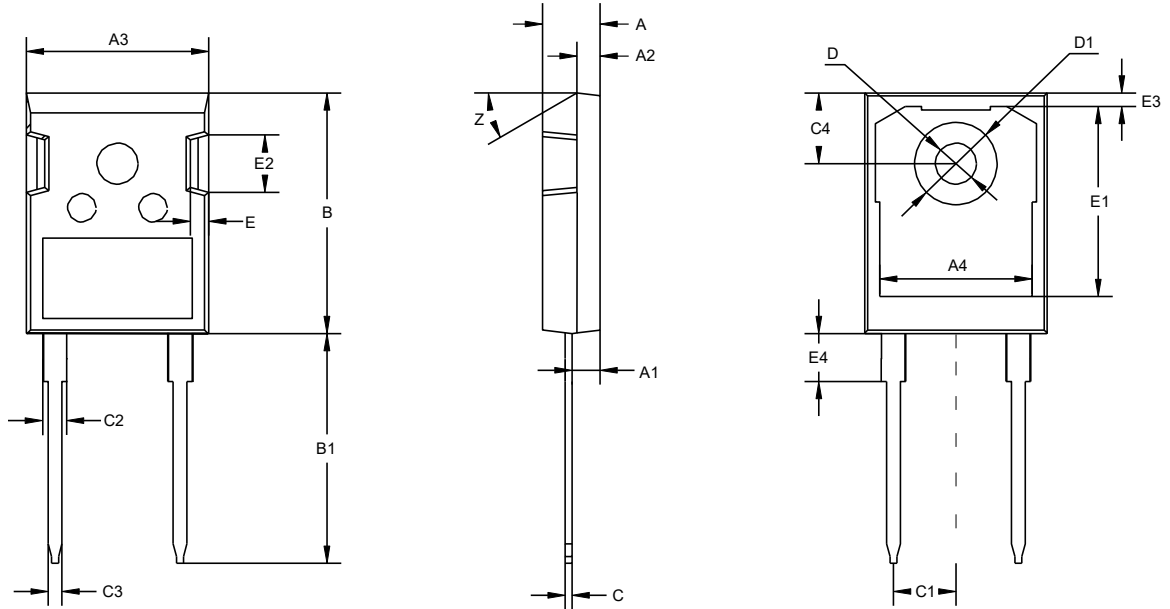
**Fig.4 – Typical Reverse Current Characteristics**



**Fig.5 – Typical Junction Capacitance**

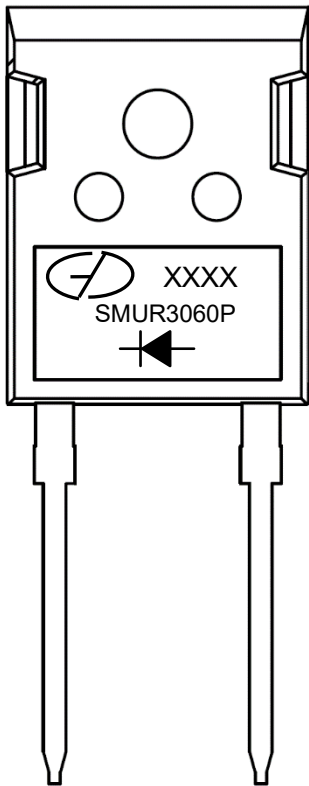
**Package Outline Dimensions** (Unit: millimeters)



**TO-247AC**



TO-247AC							
	Min.	Nom.	Max.		Min.	Nom.	Max.
A	4.7	5	5.2	C3	1.1	1.2	1.3
A1	2.3		2.5	C4	6.04	6.15	6.30
A2	1.9	2	2.1	D	3.5	3.6	3.7
A3	15.48	15.88	16.28	D1	7	7.19	7.4
A4	13.06	13.26	13.56	E	1.5	1.6	1.7
B	20.8	20.95	21.1	E1		16.55	
B1	19.8	20	20.32	E2	4.9	5.0	5.1
C	0.5	0.6	0.7	E3	0.95	1.17	1.35
C1	5.34	5.44	5.54	E4		4.17	4.5
C2		2		Z		30°	

## Marking Outline



1. Logo Mark: 
2. Date code: XXXX
3. Part Name: SMUR3060P
4. Polarity : 

## Revision History

Document Version	Date of release	Description of changes
Rev.A	2018.12.10	Released Datasheet
Rev.B	2021.01.19	Modify document format
Rev.C	2022.05.06	Update ratings and characteristics curves

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