

40A,1200V Ultrafast Recovery Rectifier

Features

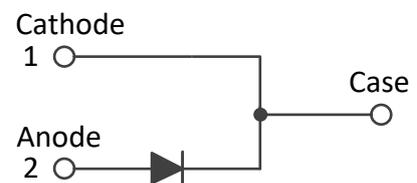
- FRED Wafer Construction
- Low forward drop voltage, low power loss
- High Surge Current Capability
- Plastic package has underwriters Laboratory Flammability Classification 94V-0
- Halogen-free according to IEC 61249-2-21



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_A=25°C unless otherwise noted)

Parameter	Symbol	SMUR40120P	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	1200	V
Working peak reverse voltage	V _{RWM}	1200	V
Maximum DC blocking voltage	V _{DC}	1200	V
Maximum average forward rectified current	I _{F(AV)}	40	A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	290	A
Voltage rate of change (rated V _R)	dv/dt	10000	V/μS
Operating junction temperature range	T _J	-55 to +175	°C
Storage temperature range	T _{STG}	-55 to +175	°C

Electrical Specifications (T _A =25°C unless otherwise noted)					
Parameter	Symbol	Test Conditions	Typ	Max	Unit
Forward drop voltage ^{Note1}	V _F	I _F =40A, T _J =25°C	3.10	3.70	V
		I _F =40A, T _J =125°C	-	3.40	
Reverse leakage current @rated V _R ^{Note2}	I _R	T _J =25°C	-	10	uA
		T _J =125°C	-	500	
Reverse recovery time	t _{rr}	I _F =0.5A, I _R =1.0A, I _{RR} =0.25A	-	60	ns

Thermal-Mechanical Specifications (T _A =25°C unless otherwise noted)			
Parameter	Symbol	Typ	Unit
Thermal Resistance, Junction to Case	R _{θJC}	0.8	°C /W
Thermal Resistance, Junction to Ambient	R _{θJA}	62.5	°C /W

Note:

1. Pulse test with PW=0.3ms, duty cycle=2%
2. Pulse test with PW=30ms

Ratings and Characteristics Curves

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

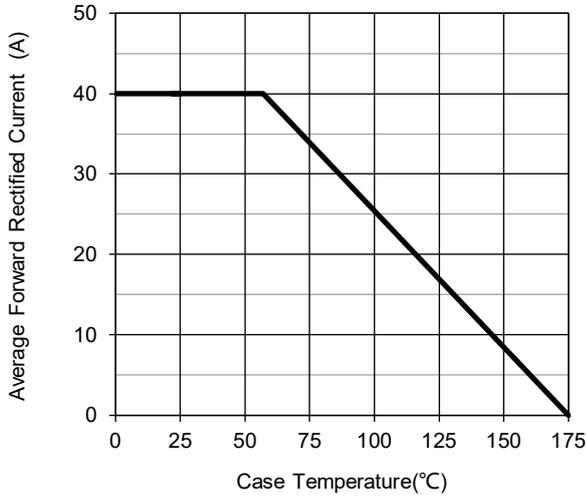


Fig.1 – Forward Current Derating Curve

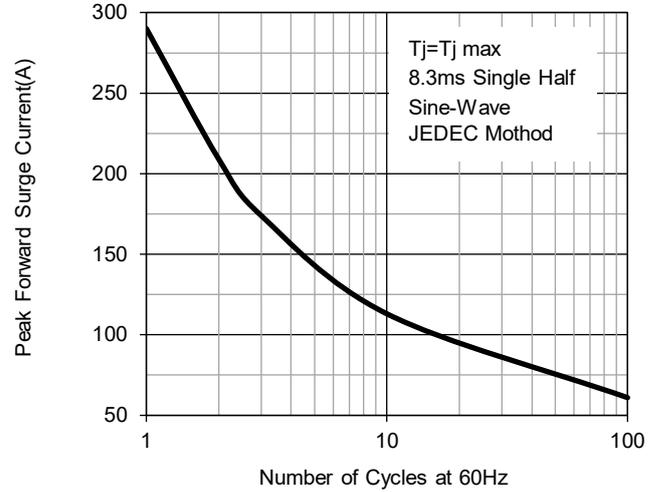


Fig.2 – Maximum Non-Repetitive Surge Current

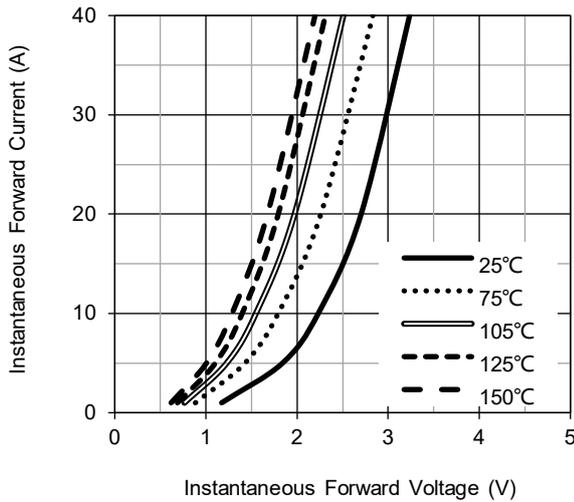


Fig.3 – Typical Forward Voltage Characteristics

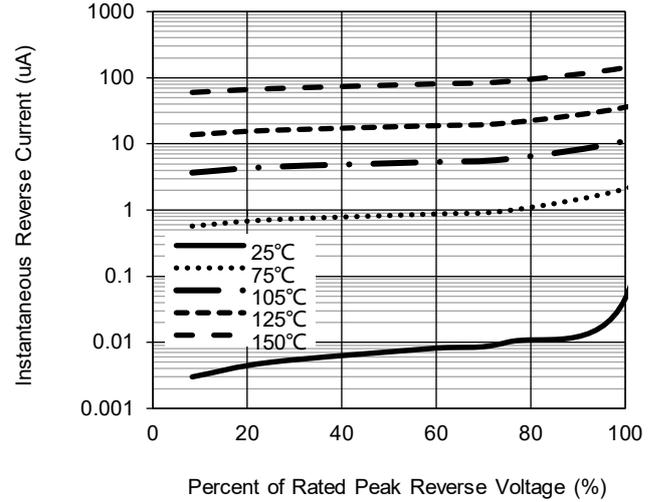


Fig.4 – Typical Reverse Current Characteristics

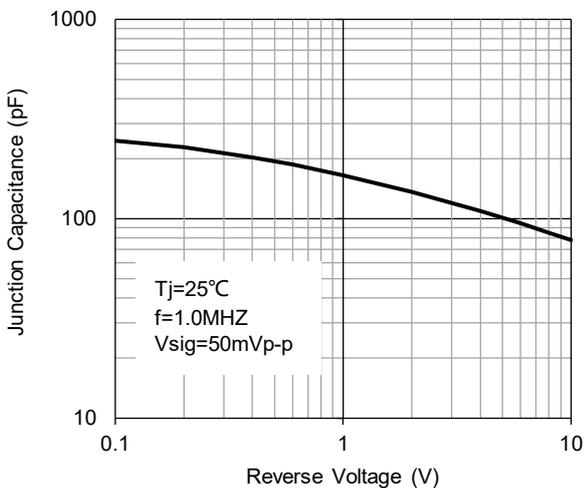
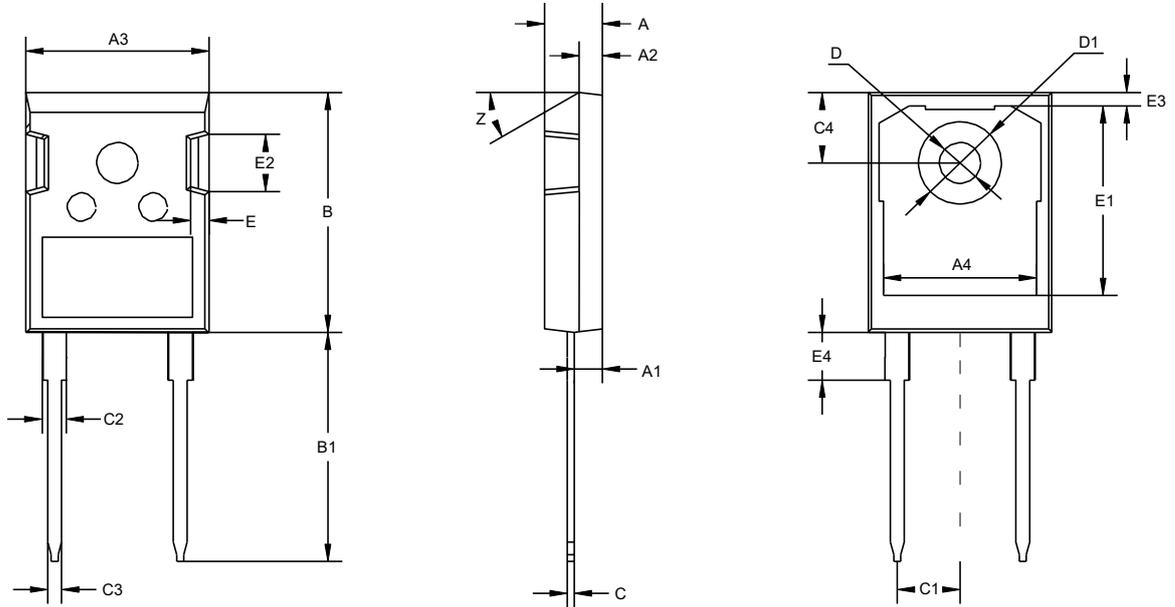


Fig.5 – Typical Junction Capacitance

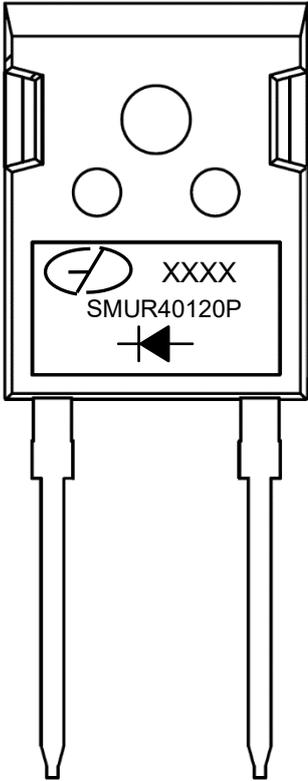
Package Outline Dimensions (Unit: millimeters)

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: SMUR40120P
4. Polarity : 

Revision History

Document Version	Date of release	Description of changes
Rev.A	2019.02.10	Released Datasheet
Rev.B	2021.01.19	Modify document format
Rev.C	2022.03.16	Update ratings and characteristics curves

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