

**SMDU40C65K****40A SIC SCHOTTKY BARRIER DIODE****FEATURE**

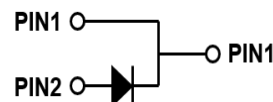
- 650V Schottky Diode, 100% avalanche tested*
- Zero Reverse Recovery/Zero Forward Recovery
- High Efficiency Operation
- Extremely Fast Switching
- Temperature Independent Switching Behavior

TYPICAL APPLICATIONS

- Switch mode power supply
- Power factor correction Solar Invertor
- Solar inverter
- Uninterruptible power supply



TO-247-2L



*20% rating current, 5 mH inductance.

MAXIMUM RATINGS ($T_C=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	650	V
DC blocking Voltage	V_{DC}	650	V
Maximum Average Forward Rectified Current at $T_C=150^\circ\text{C}$	$I_{F(AV)}$	40	A
Non-Repetitive Peak Forward Surge Current $T_C=25^\circ\text{C}$, $t_p=10$ ms, Half Sine Pulse	I_{FSM}	220	A
Total power dissipation $T_C=25^\circ\text{C}$	P_D	214	W
Operation Junction Temperature and Storage Temperature	T_J, T_{STG}	-40 to +175	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Typ	Max	Unit
Forward voltage	$I_F=40\text{A}, T_J=25^\circ\text{C}$	V_F	1.35	1.65	V
	$I_F=40\text{A}, T_J=175^\circ\text{C}$		1.7		
Reverse current	$V_R=650\text{V}, T_J=25^\circ\text{C}$	I_R	20	150	μA
	$V_R=650\text{V}, T_J=175^\circ\text{C}$		80		
Total capacitive charge	$V_R=400\text{V}$	Q_C	80	---	nC
Total capacitance	$V_R=0\text{V}, T_J=25^\circ\text{C}, f=1\text{MHz}$	C	1732	---	pF
	$V_R=200\text{V}, T_J=25^\circ\text{C}, f=1\text{MHz}$		145	---	
	$V_R=400\text{V}, T_J=25^\circ\text{C}, f=1\text{MHz}$		137	---	

THERMAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Typ	Max	Unit
Typical Thermal Resistance Junction to Case	$R_{(JC)}$	0.7	----	$^\circ\text{C/W}$



Typical Characteristics

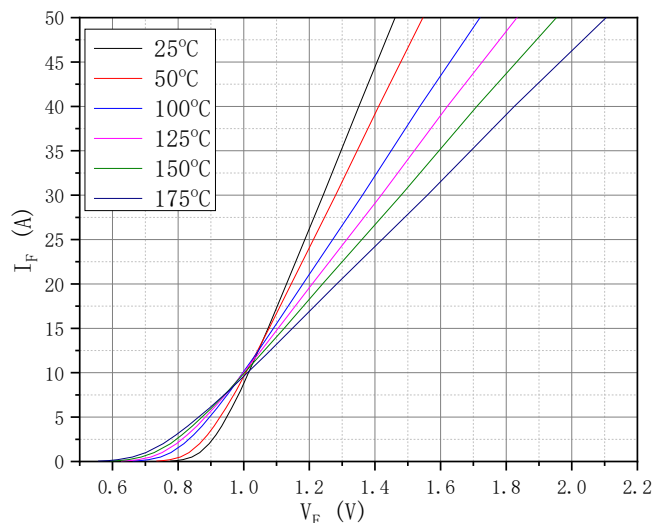


Figure 1. Forward Characteristics

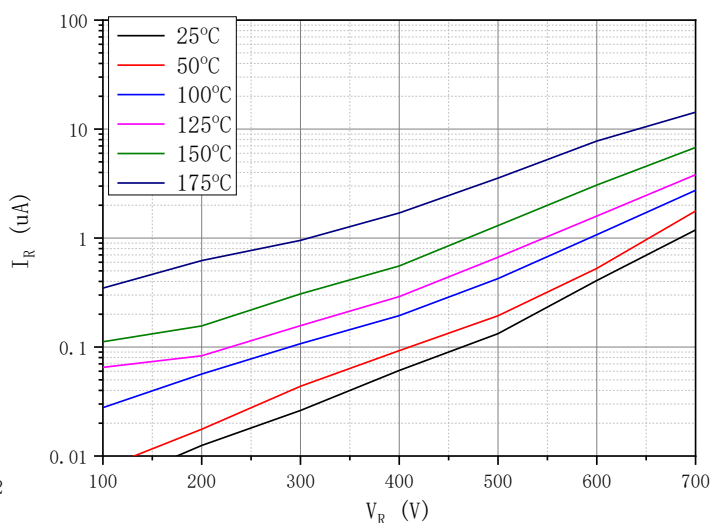


Figure 2. Reverse Characteristics

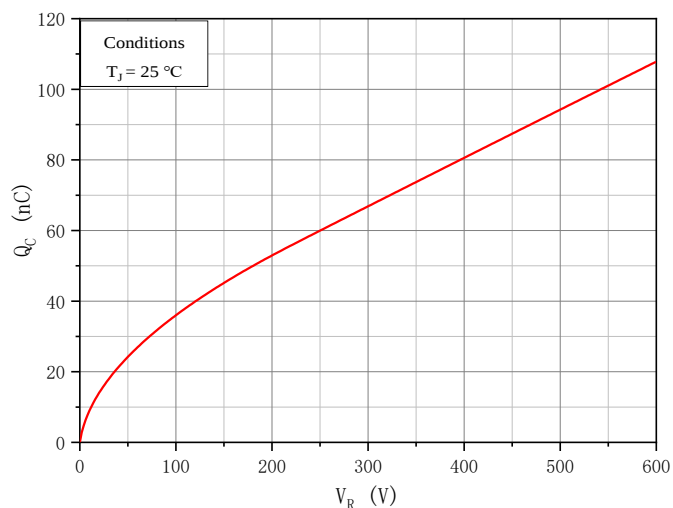


Figure 3. Total Capacitance Charge vs. Reverse Voltage

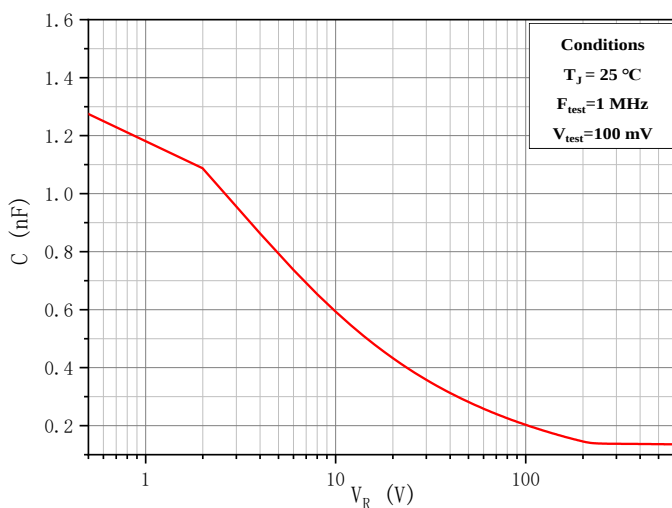
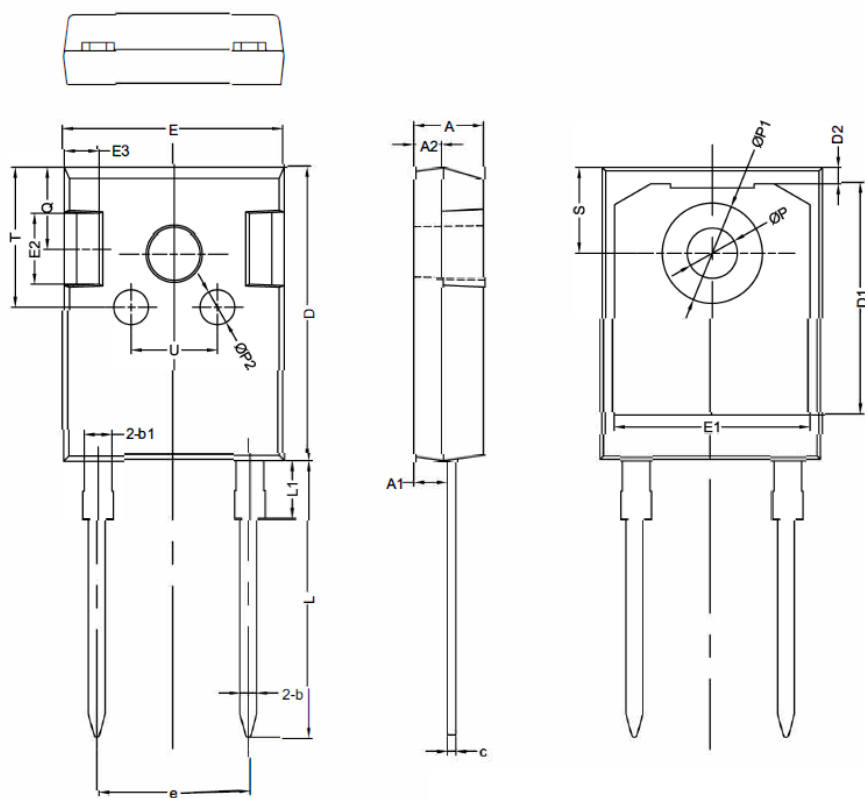


Figure 4. Capacitance vs. Reverse Voltage



TO-247-2L PACKAGE OUTLINE



	MIN	MON	MAX
A	4.80	5.00	5.20
A1	2.21	2.41	2.61
A2	1.90	2.00	2.10
b	1.10	1.20	1.35
b1		2.00	
c	0.55	0.60	0.75
D	20.80	21.00	21.20
D1		16.58	
D2		1.17	
E	15.60	15.80	16.0
E1		14.02	
E2		5.00	
E3		2.50	
e		10.88	
L	19.42	19.92	20.42
L1		4.13	
P	3.50	3.60	3.70
P1		7.19	
P2		2.50	
Q		5.80	
S	6.05	6.15	6.25
T		10.00	
U		6.20	