

**SiC SCHOTTKY DIODE TYPE 40A**
**Features**

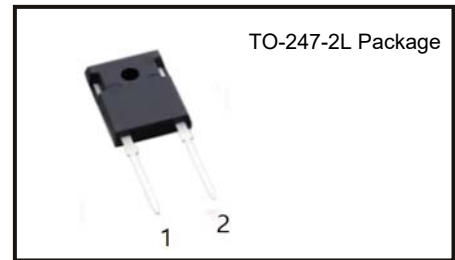
- Low conduction and switching loss
- Zero reverse recovery
- High surge current capability
- Positive temperature coefficient device
- RoHS compliant and halogen free
- Temperature independent switching behavior
- Suitable for high power application
- $V_{DC}$  1200 V
- $I_F$  ( $T_C=25 / 158\text{ }^\circ\text{C}$ ) 130A/40A

**Benefits**

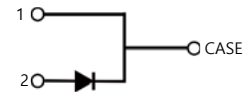
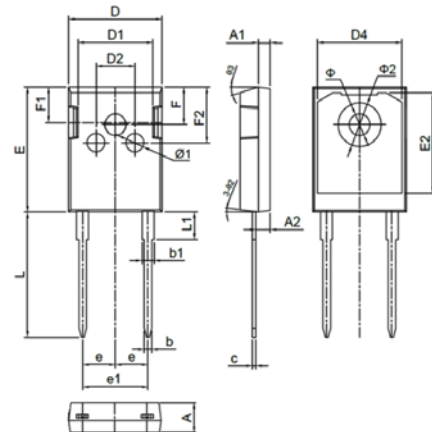
- Increase parallel device convenience
- Enable high temperature application
- Realize compact and lightweight systems
- Allow high frequency operation
- Higher system efficiency
- High reliability

**Applications**

- Switching mode power supply
- PFC
- UPS
- Motor drives
- Flywheel diode in power inverters
- Solar/Wind renewable energy



Package Dimensions



Unit : mm

**Maximum Ratings**

 Operating Junction Temperature :  $-55\text{ }^\circ\text{C}$  to  $+175\text{ }^\circ\text{C}$ 

 Storage Temperature :  $-55\text{ }^\circ\text{C}$  to  $+150\text{ }^\circ\text{C}$ 

Part Number	Maximum Recurrent Peak Reverse Voltage	Maximum DC Blocking Voltage
CSR040-120Y3	1200V	1200V

Maximum Rating	Symbol	Conditions	Value	Unit
Repetitive peak reverse voltage	$V_{RRM}$	$T_J=25\text{ }^\circ\text{C}$	1200	V
Continuous forward current	$I_F$	$T_C=25\text{ }^\circ\text{C}$	130	A
		$T_C=158\text{ }^\circ\text{C}$	40	
Non-repetitive forward surge current	$I_{FSM}$	$T_C=25\text{ }^\circ\text{C}$	300	
Power Dissipation	$P_D$	$T_C=25\text{ }^\circ\text{C}$	600	W

Symbol	Min	Max	Symbol	Min	Max
A	4.90	5.10	e	5.45(BSC)	
A1	1.91	2.10	e1	10.90(BSC)	
A2	2.20	2.54	F	6.05	6.25
b	1.07	1.33	F1	5.50	5.90
b1	1.90	2.30	F2	9.20	10.00
c	0.55	0.68	L	19.85	20.40
D	15.70	16.03	L1	3.93	4.35
D1	11.60	12.00	$\phi$	3.50	3.80
D2	6.10	6.60	$\phi 1$	2.50	3.10
D4	13.20	14.20	$\phi 2$	7.00	7.40
E	20.20	21.10	$\theta 2$	5°	9°
E2	16.10	16.90	$\theta 3$	13°	17°

**Electrical Characteristics**, at  $T_J = 25^\circ\text{C}$ , unless otherwise specified.

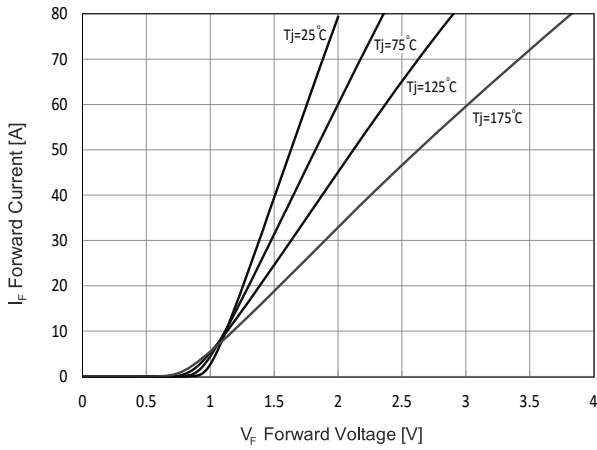
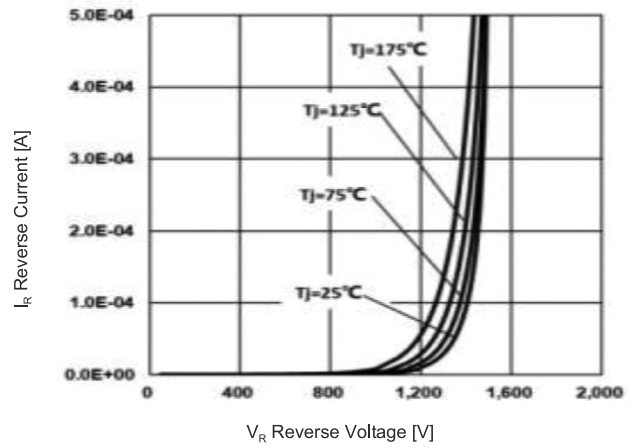
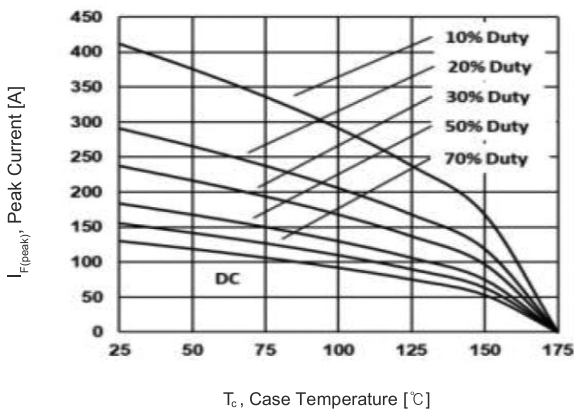
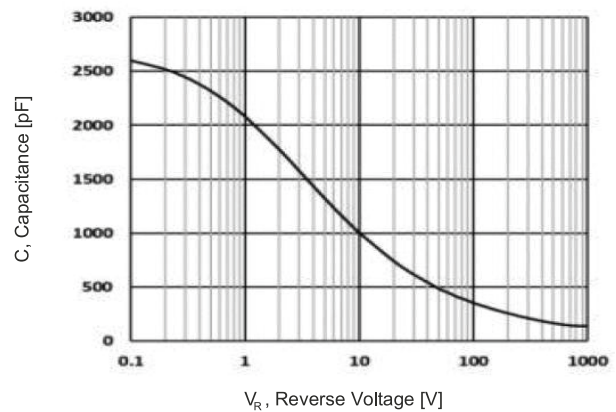
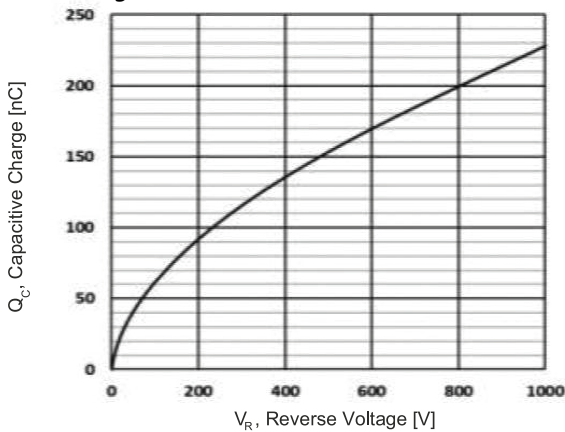
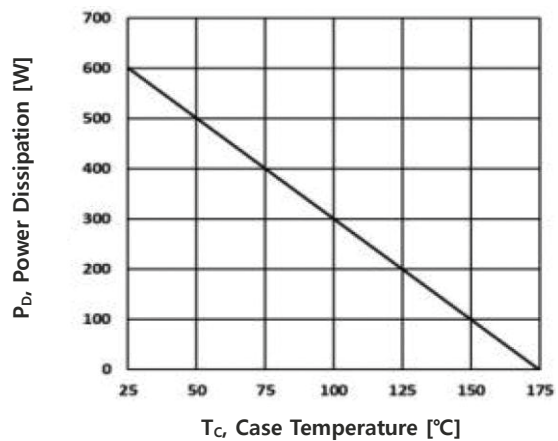
Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
DC blocking voltage	$V_{DC}$		1200	-	-	V
Diode forward voltage	$V_F$	$I_F = 40\text{A}, T_J = 25^\circ\text{C}$	-	1.5	1.7	
		$I_F = 40\text{A}, T_J = 175^\circ\text{C}$	-	2.2	2.6	
Reverse current	$I_R$	$V_R = 1200\text{V}, T_J = 25^\circ\text{C}$	-	10	300	$\mu\text{A}$
		$V_R = 1200\text{V}, T_J = 175^\circ\text{C}$	-	50	500	

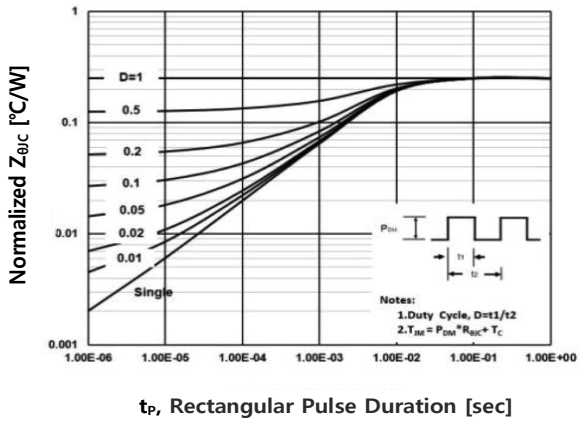
**AC Characteristics**

Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Total capacitive charge	$Q_C$	$V_R = 800\text{V}$	-	200	-	nC
Total capacitance	C	$V_R = 0\text{V}, f = 1\text{ MHz}$	-	2694	-	pF
		$V_R = 800\text{V}, f = 1\text{ MHz}$	-	145	-	

**Thermal Characteristics**

Static Characteristics	Symbol	Values	Unit
		typ.	
Thermal resistance from junction to case	$R_{\theta JC}$	0.25	$^\circ\text{C/W}$

**Typical Device Performance**
**Fig. 1 Typical Forward Characteristics**

**Fig. 2 Typical Reverse Current as Function of Reverse Voltage**

**Fig. 3 Diode Forward Current as Function of Temperature**

**Fig. 4 Typical Capacitance as Function of Reverse Voltage**

**Fig. 5 Typical Reverse Charge as Function of Reverse Voltage**

**Fig. 6 Power Dissipation as Function of Case Temperature**


**Typical Device Performance**
**Fig. 7 Transient Thermal impedance**


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