1. General description:

Silicon Carbide Schottky diode in a TO252-2L plastic package, designed for high frequency switched-mode power supplies.

2. Features and benefits:

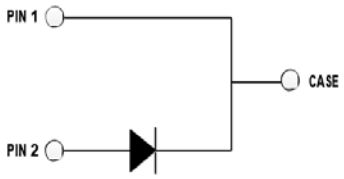
- Zero Reverse Recovery Current
- Positive temperature coefficient
- Temperature-independent performance
- High-speed switching
- Low switching loss
- Low heat dissipation requirements

3. Applications:

- Switching power supply
- Power factor correction
- Motor drive，traction
- Charging pile
- PC Silverbox

4. Typical Performance Diagrams and Package:

V_{RRM}	1200	V
I_F(135℃)	3.9	A
Q_C	12	nC



5. Ordering information:

Parts Number	Marking	Package	Vde min	IF max(A)	Pins	SPQ	Packaging
TSSiC120S002E	TSSiC120S002E	TO-252-2L	1200V	2A	2	600	Tube

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6. Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	Test Conditions
Reverse voltage (Repetitive peak)	V_{RRM}	1200	V	T_C =25℃
Reverse Voltage (Surge peak)	V_{RSM}	1200		T_C =25℃
Reverse voltage (DC)	V_{DC}	1200		T_C =25℃
Continuous forward current	I_F	8.5	A	T_C =25℃
		3.9		T_C =135℃
		2		T_C =155℃
Surge non-repetitive forward current	I_{FSM}	27	A	T_C=25℃,t_p=10ms,half Sine Pulse
Total power dissipation	P_{TOT}	52	W	T_C=25℃
i^2t value	$\int i^2dt$	3.65	A^2s	T_C=25℃, t_P=10ms
Operating temperature	T_j	-55~175	℃	
storage temperature	T_{stg}	-55~175	℃	

7. Thermal Characteristics

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Thermal resistance	$R_{th(j-c)}$	/	2.9	/	℃/W	

8. Electrical Characteristics T_j = 25℃

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
DC blocking voltage	V_{DC}	1200	/	/	V	I_R=100 μA
Forward voltage	V_F	/	1.40	1.80	V	I_F=2A, T_j =25℃
		/	2.05	2.70		I_F=2A, T_j =175℃
Reverse current	I_R	/	1	10	μA	V_R=1200V, T_j =25℃
		/	2	40		V_R=1200V, T_j =175℃
Total capacitance	C	/	140	/	pF	V_R=0V, f=1MHz
		/	11.7	/		V_R=400V, f=1MHz
		/	9.5	/		V_R=800V, f=1MHz
Total capacitive charge	Q_C	/	12	/	nC	V_R=800V
Capacitance Stored Energy	E_C	/	3.7	/	μJ	V_R=800V

9. Typical Electrical Characteristics Curves

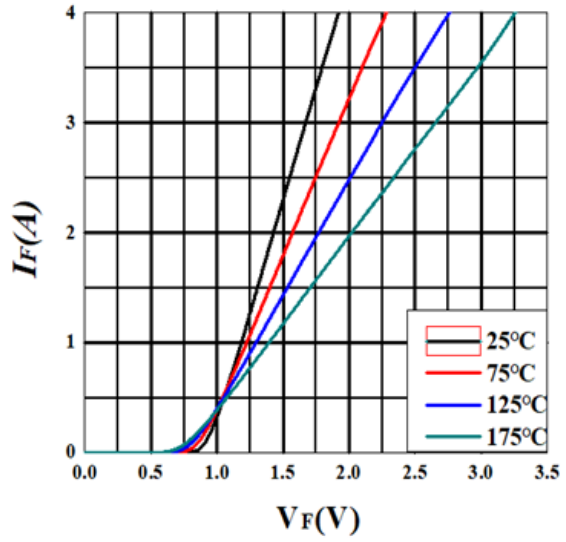


Figure 1. Forward Characteristics

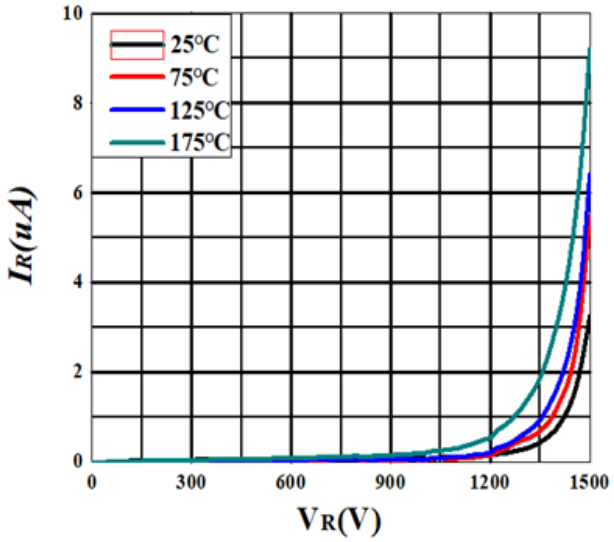


Figure 2. Reverse Characteristics

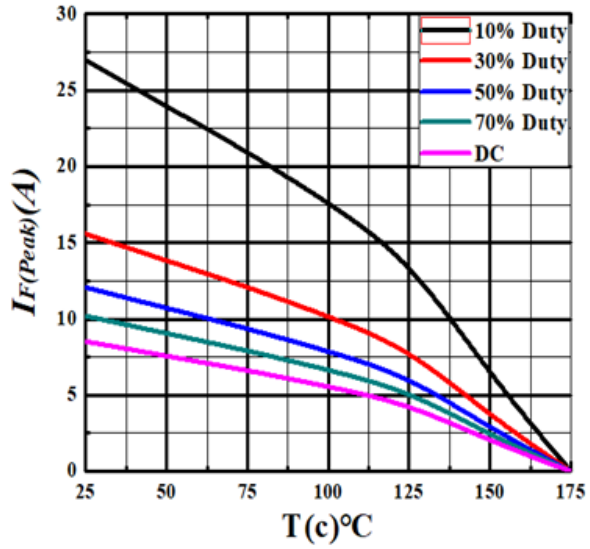


Figure 3. Current Derating

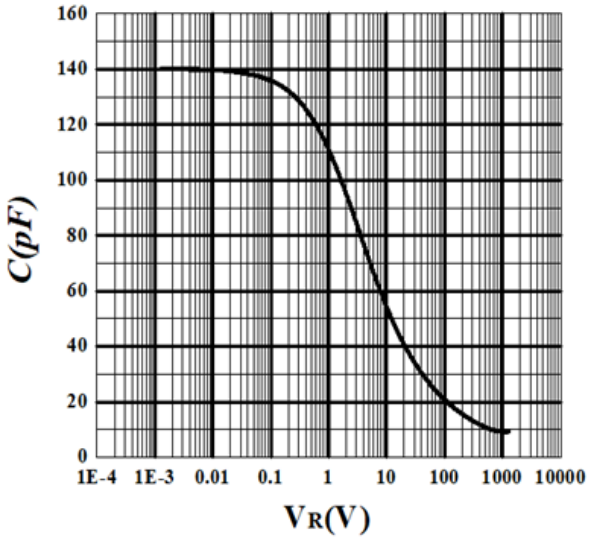


Figure 4. Capacitance vs. Reverse Voltag

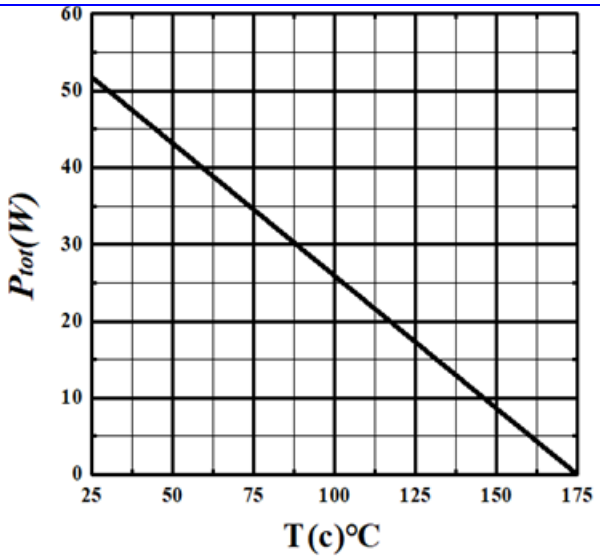


Figure 5. Power Derating

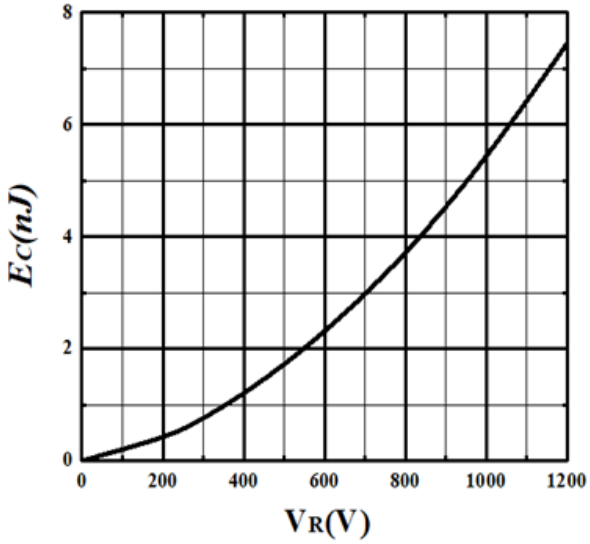


Figure 6. Capacitance Stored Energy

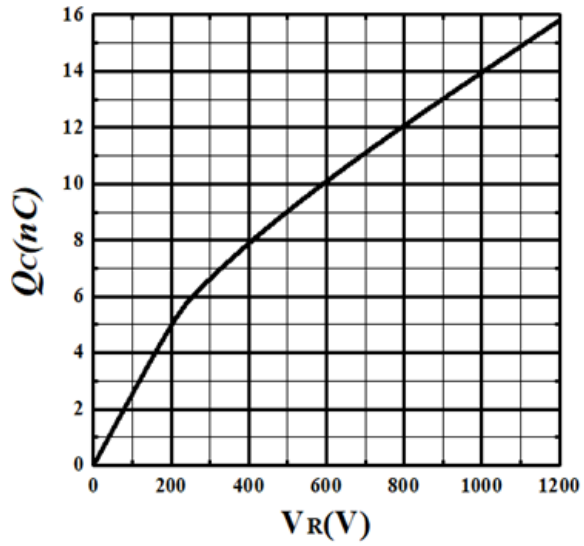
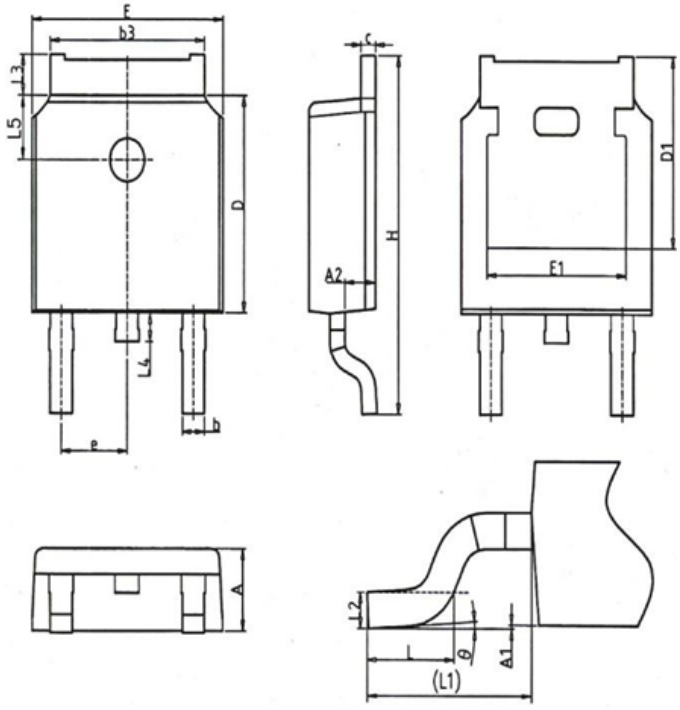


Figure 7. Total Capacitance Charge vs. Reverse Voltage

10. Package



SYMBOL	mm		
	MIN	NOM	MAX
A	2.2	2.3	2.38
A1	0	-	0.2
A2	0.97	1.07	1.17
b	0.68	0.78	0.9
b3	5.2	5.33	5.46
c	0.43	0.53	0.61
D	5.98	6.1	6.22
D1	5.30REF		
E	6.4	6.6	6.73
E1	4.63	-	-
e	2.286BSC		
H	9.4	10.1	10.5
L	1.38	1.5	1.75
L1	2.90REF		
L2	0.51BSC		
L3	0.88	-	1.28
L4	0.5	-	1
L5	1.65	1.8	1.95
θ	0°	-	8°

11. Ordering information

Part Number	TSSiC120S002E
Package	TO-252-2L
	TSSiC120S002E
Unit Quantity	2500 EA
Packing Type	Tape Ree
RoHS	Yes

12. Notes

SiC Schottky diode portfolio: http://www.thrivesemi.com/