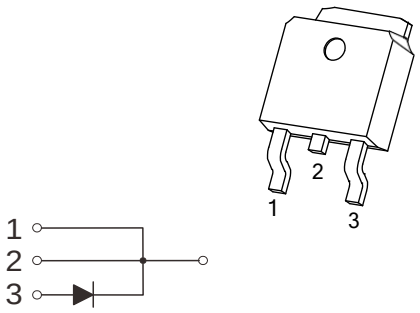
TO-252-2L Silicon Carbide Schottky Diode

SiC Diode 650V,4A,12.5nC

Features:

- Zero Forward/Reverse Recovery Current
- High Blocking Voltage
- High Frequency Operation
- Positive Temperature Coefficient on VF
- Temperature Independent Switching Behavior

TO-252-2L



Applications:

- Switch Mode Power Supplies
- Solar Inverters
- AC/DC converters
- DC/DC converters
- Uninterruptable power supplies

Benefits

- Higher System Efficiency
- Parallel Device Convenience
- Higher Temperature Application
- High Frequency Operation
- Hard Switching & Higher Reliability
- Environmental Protection

General Description:

This product family offers state of the art performance. It is designed for high frequency applications here high efficiency and high reliability are required.

Key performance parameters

Type	V_R	I_F T_C=150℃	Q_C
KWSC0465D	650V	4A	12.5

Caution: This device is sensitive to electrostatic discharge .Users should follow ESD handing procedures.

Maximum Ratings

T_C=25℃, unless otherwise specified

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	650	V
Peak Reverse Surge Voltage	V_{RSM}	650	V
DC Blocking Voltage	V_R	650	V

Maximum Ratings

T_C=25℃, unless otherwise specified

Parameter	Symbol	Value	Unit
Continuous Forward Current: T_C = 150℃	I_F	4A	A
Non Repetitive Forward Surge Current: T_C = 110℃, tp =10ms, Half Sine Pulse	I_{FSM}	35	A
Repetitive peak Forward Surge Current: T_C = 25℃, tp=10ms, Half Sine Pulse	I_{FRM}	38	A
Total power dissipation: T_C = 25℃	P_D	54	W
Operating Junction Temperature :	T_j	-55 to 175	℃
Storage Temperature :	T_{stg}	-55 to 175	℃

Thermal Resistance

Parameter	Symbol	Typ.	Max	Unit
Thermal resistance	R_{thJC}	1.8		℃/W

Electrical Characteristic

T_C =25℃, unless otherwise specified

Parameter	Symbol	Value			Unit	Test Condition
		Min.	Typ.	Max.		
DC Blocking Voltage	V_{DC}	650			V	I_R = 250μA T_j = 25℃
Forward Voltage	V_F		1.45 1.6 1.75	1.8	V	I_F = 4A T_j =25℃ T_j = 125℃ T_j =175℃
Reverse Current	I_R		7 38 108	80	uA	V_R = 650V T_j = 25℃ T_j = 125℃ T_j =175℃
Total Capacitance Charge	Q_C		12.5		nC	V_R = 400V
Total Capacitance	C		230 33 24		pF	V_R = 1V V_R = 200V V_R = 400V T_j = 25℃ Freq = 1MHz

Characteristics Curves

Figure 1. Forward Characteristics

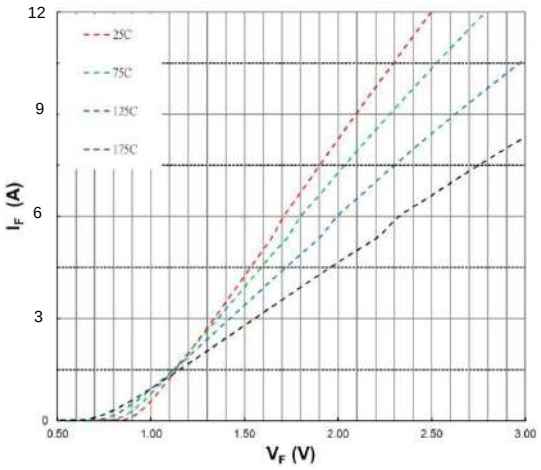


Figure 2. Forward Characteristics

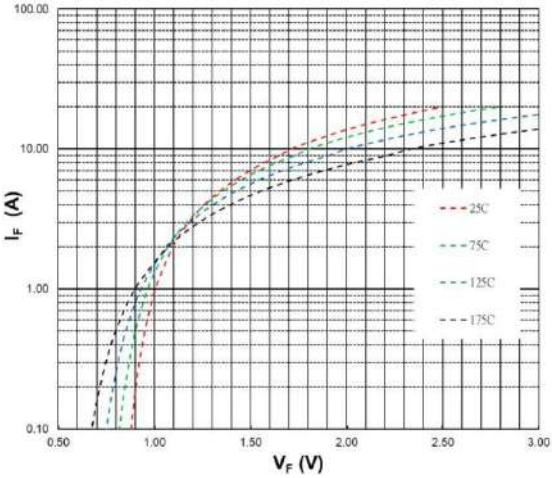


Figure 3. Reverse Characteristics

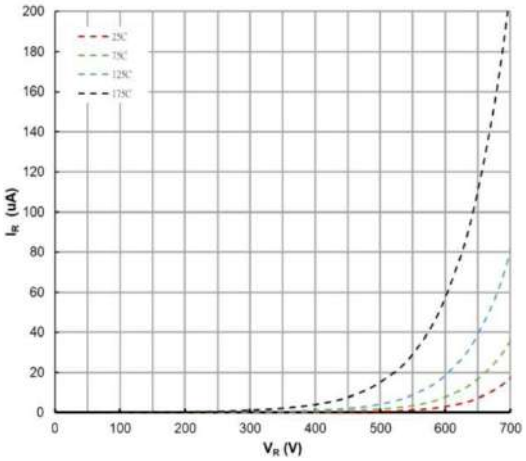


Figure 4. Power Derating

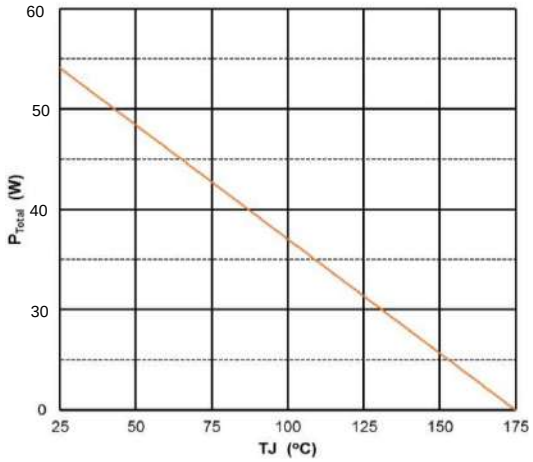


Figure 5. Capacitance vs Reverse Voltage

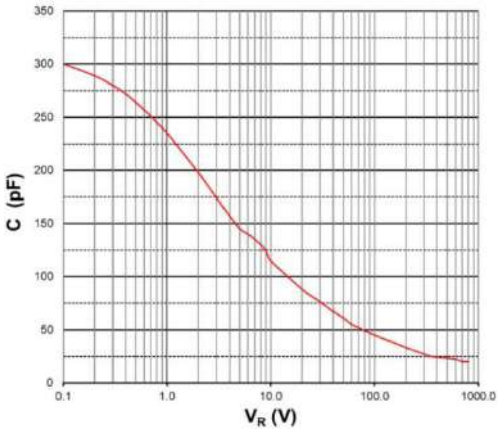
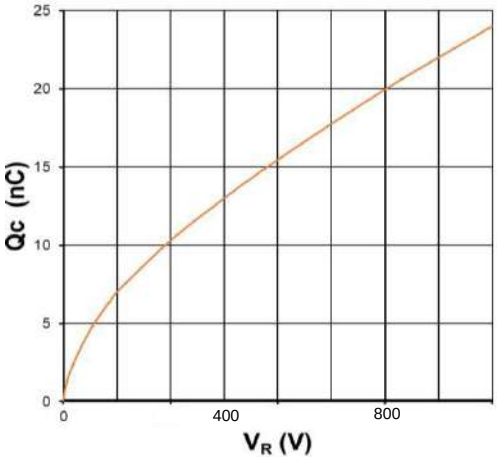
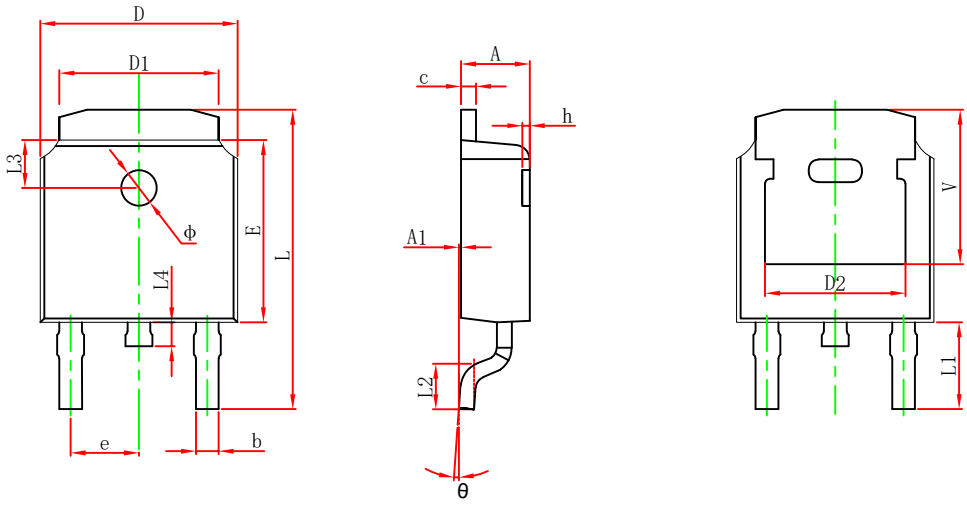


Figure 6. Recovery Charge vs Reverse Voltage

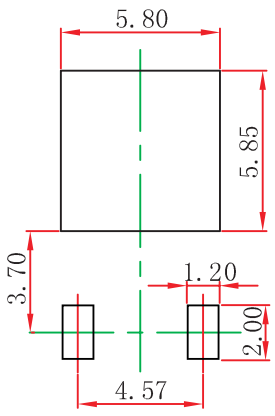


TO-252-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	

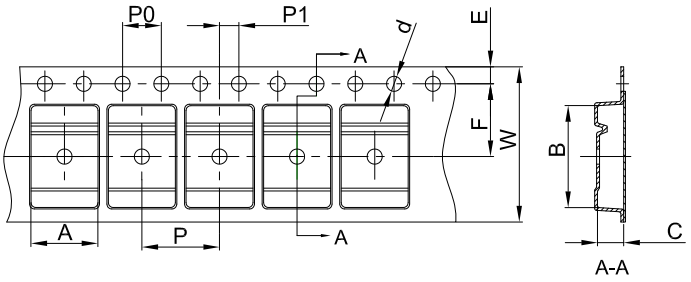
TO-252-2L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

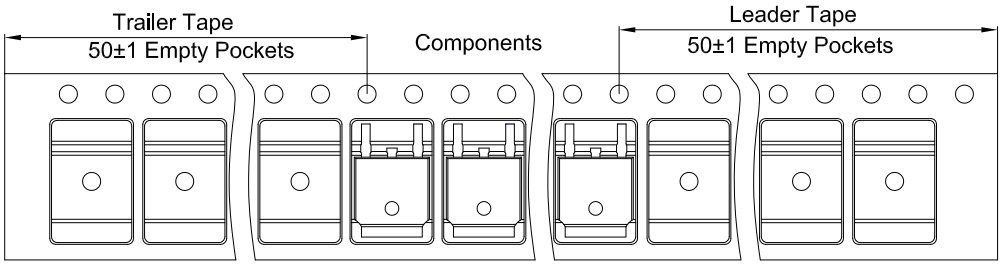
TO-252-2L Tape and Reel

TO-252 Embossed Carrier Tape

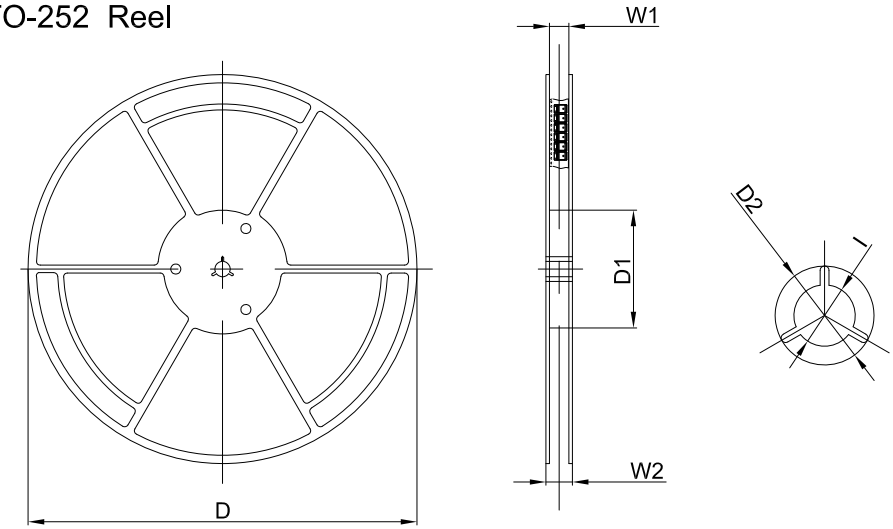


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-252	6.90	10.50	2.70	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00

TO-252 Tape Leader and Trailer



TO-252 Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13"Dia	330.00	100.00	Ø21.00	16.40	21.00	Ø13.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13inch	2,500 pcs	340×336×29	25,000 pcs	353×346×365	