KINGWELL TECHNOLOGY CORP., LTD.

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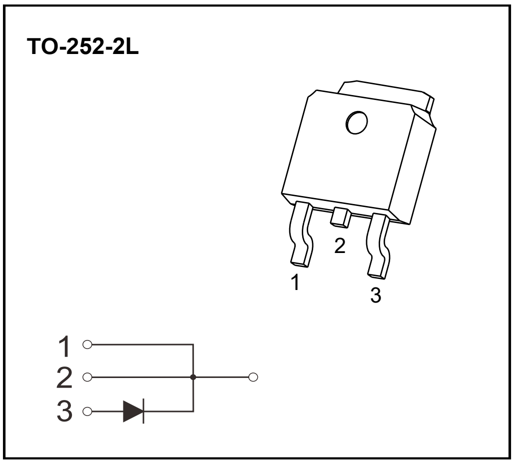
KWSC3D08065E

SiC Schottky Diode

Features

- Reverse withstand voltage 650V
- Zero reverse recovery current
- High working frequency
- Switch characteristics are not affected by temperature
- Fast switching speed
- Positive temperature coefficient of positive pressure drop



Advantages

- Very low switching loss
- Higher efficiency
- Low dependence of the system on the heat sink
- No thermal collapse in parallel devices

Application

- Switching mode power supply, AC/DC converter
- Power factor correction
- Motor drive
- PV inverter and wind turbine

Absolute Maximum Rating (Ta=25℃)

Parameter	Symbol	Test conditions	Value	Unit
Peak repetitive reverse voltage	V_{RRM}		650	V
Working Peak Reverse voltage	V_{RWM}		650	V
DC Blocking Voltage	V_{DC}		650	V
Average rectified output current	$I_{F(AV)}$	Ta=25℃ Ta=125℃ Ta=150℃	30 14 8	A
Forward repetitive peak current	I_{FRM}	T_C=25℃, tp=10ms,Half Sine Wave T_C=110℃,tp=10ms,Half Sine Wave	45 21.5	A
Forward surge current	I_{FSM}	T_C=25℃, tp=10ms,Half Sine Wave T_C=110℃,tp=10ms,Half Sine Wave	72 55	A
Power dissipation	P_{tot}	Ta=25℃ Ta=110℃	90 38	W
Junction temperature	T_j		-55 ~ +175	℃
Storage temperature	T_{stg}		-55 ~ +175	℃

Thermal characteristics

Parameter	Symbol	Vaule	Unit
Thermal Resistance - Junction to Case	$R_{\theta JC}$	2.3	°C/ W

Electrical Characteristics (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	V_F	I_F = 8 A, T_j=25℃ I_F = 8 A, T_j=175℃		1.4 1.57	1.8 2.4	V
Reverse current	I_R	V_R = 650V, T_j=25℃ V_R = 650V, T_j=175℃		1 15	20 200	μA
Total capacitive charge	Q_C	V_R = 400V, I_F = 8 A di/dt=500A/μs, ,T_j=25℃		11		nC
Total capacitance	C	V_R = 0V, T_j=25℃, f=1MHz V_R = 200V, T_j=25℃, f=1MHz V_R = 400V, T_j=25℃, f=1MHz		580 58 42		pF

Typical Characteristics

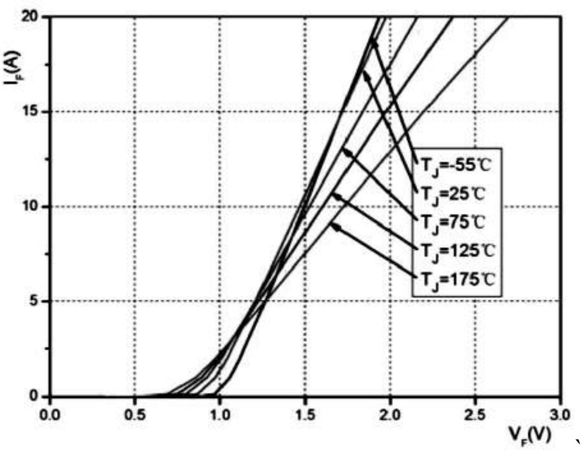


Figure 1. Forward Characteristics

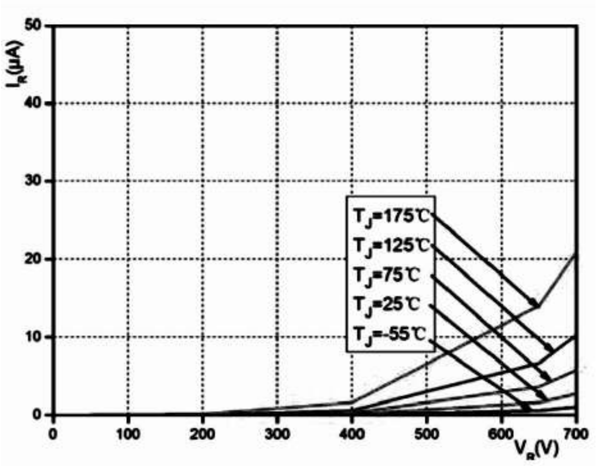


Figure 2. Reverse Characteristics

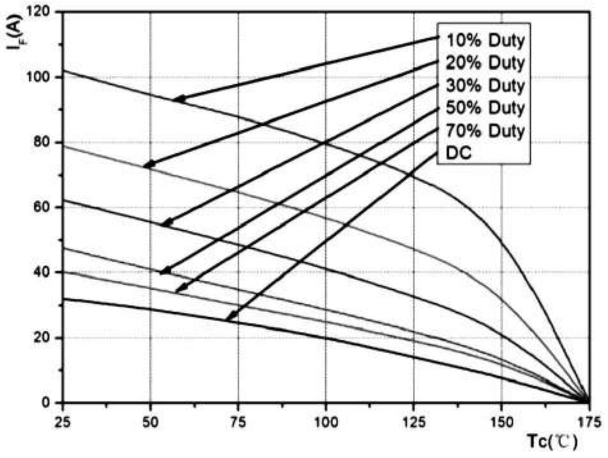


Figure 3. Load current

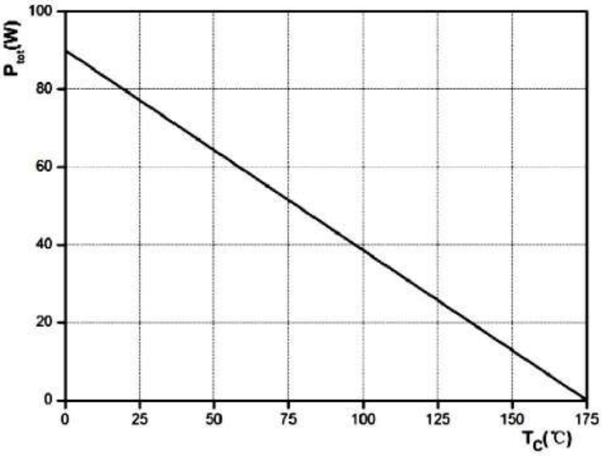


Figure 4. Dissipated power curve

Typical Characteristics

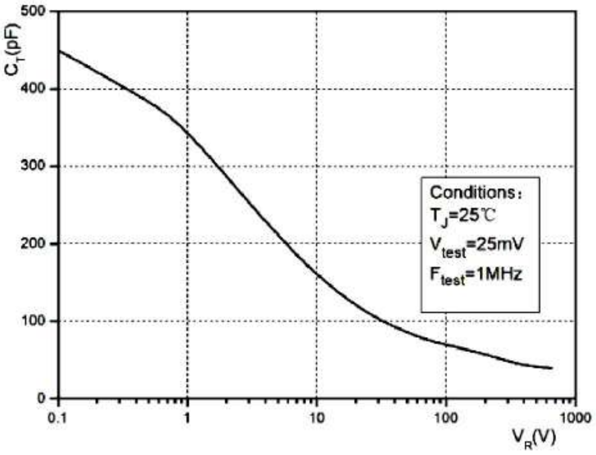


Figure 5. Capacitance vs reverse voltage

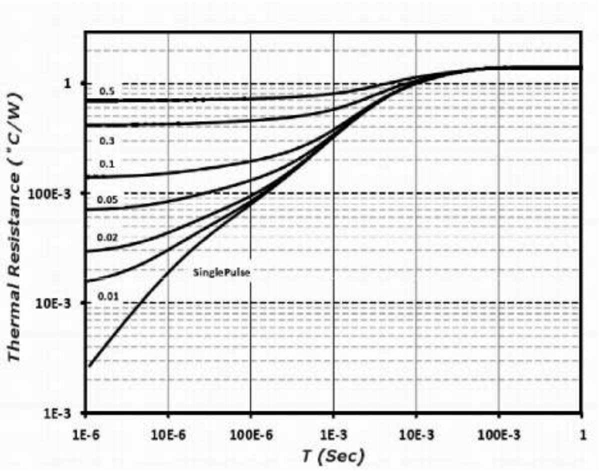
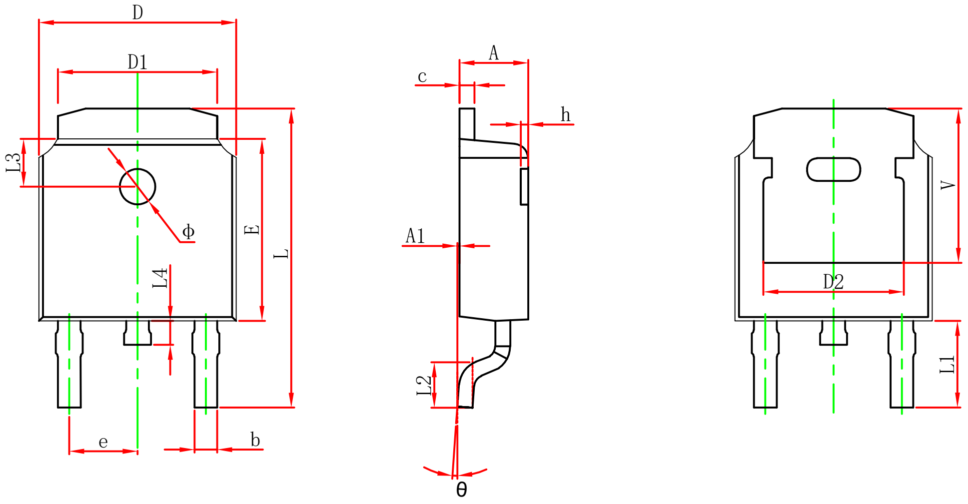


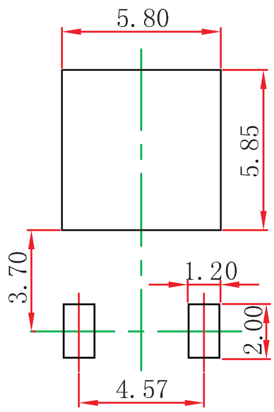
Figure 6. Thermal ImpedanceJunction-to-Case

TO- 252-2L Package Outline Dimensions



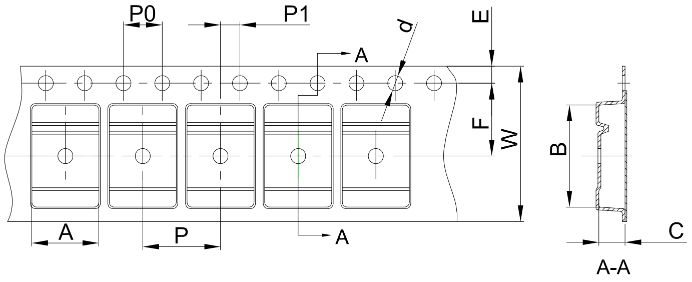
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	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



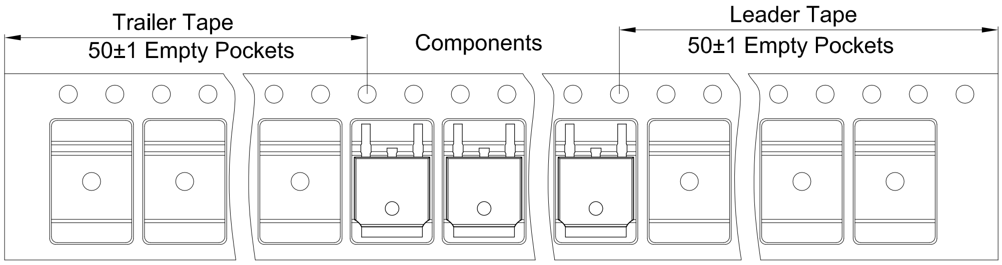
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes onl

TO-252 Embossed Carrier Tape

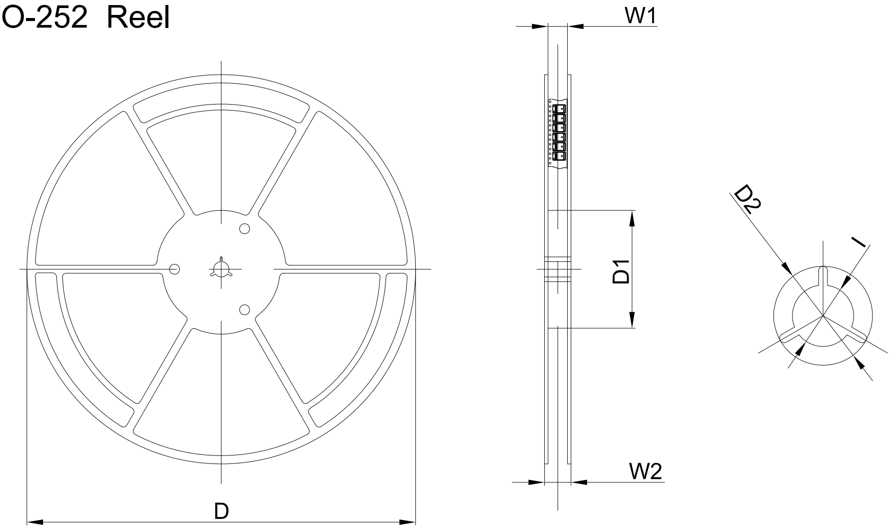


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-252	6.90	10.50	2.70	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00

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	