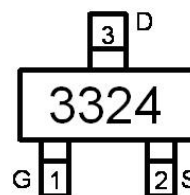
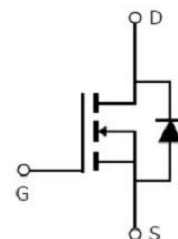


Main Product Characteristics:

V_{DSS}	30V
$R_{DS(on)}$	26.5m Ω (typ.)
I_D	5.8A ^①


SOT-23

Marking and pin Assignments

Schematic Diagram
Features and Benefits:

- Advanced trench MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


Description:

It utilizes the latest trench processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications

Absolute max Rating:

Symbol	Parameter	Max.	Units
I_D @ TC = 25°C	Continuous Drain Current, V_{GS} @ 10V ^①	5.8	A
I_D @ TC = 100°C	Continuous Drain Current, V_{GS} @ 10V ^①	4.2	
I_{DM}	Pulsed Drain Current ^②	23	
P_D @TC = 25°C	Power Dissipation	1.4	W
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-to-Source Voltage	± 12	V
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	°C


Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
R _{θJA}	Junction-to-ambient (t ≤ 10s) ③	—	90	°C/W

Electrical Characterizes @T_A=25°C unless otherwise specified

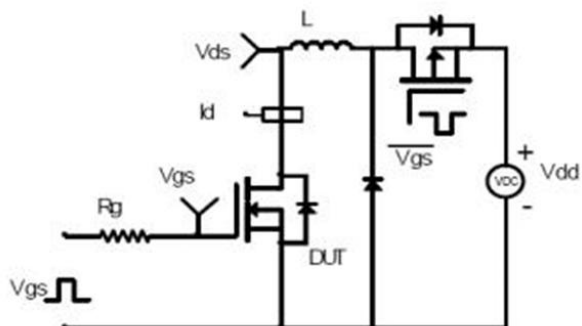
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	30	—	—	V	V _{GS} = 0V, I _D = 250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	26.5	34.5	mΩ	V _{GS} =4.5V, I _D = 2A T _J = 125°C
		—	43.7	—		
R _{DS(on)}	Static Drain-to-Source on-resistance	—	52	77	mΩ	V _{GS} =2.5V, I _D =1.5A
V _{GS(th)}	Gate threshold voltage	0.7	—	1.4	V	V _{DS} = V _{GS} , I _D = 250μA T _J = 125°C
		—	0.63	—		
I _{DSS}	Drain-to-Source leakage current	—	—	1	μA	V _{DS} = 24V, V _{GS} = 0V T _J = 125°C
		—	—	50		
I _{GSS}	Gate-to-Source forward leakage	—	—	100	nA	V _{GS} = 12V V _{GS} = -12V
		—	—	-100		
Q _g	Total gate charge	—	10	—	nC	I _D = 5.8A, V _{DS} =15V, V _{GS} = 4.5V
Q _{gs}	Gate-to-Source charge	—	2	—		
Q _{gd}	Gate-to-Drain("Miller") charge	—	3	—		
t _{d(on)}	Turn-on delay time	—	3	—	ns	V _{GS} =10V, V _{DS} = 15V, R _{GEN} =3Ω
t _r	Rise time	—	5	—		
t _{d(off)}	Turn-Off delay time	—	26	—		
t _f	Fall time	—	4	—		
C _{iss}	Input capacitance	—	1245	—	pF	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz
C _{oss}	Output capacitance	—	85	—		
C _{rss}	Reverse transfer capacitance	—	70	—		

Source-Drain Ratings and Characteristics

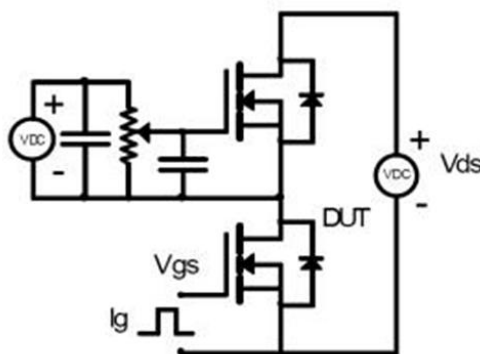
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode) ①	—	—	5.8	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode)	—	—	23	A	
V _{SD}	Diode Forward Voltage	—	0.72	1.2	V	

Test circuits and Waveforms

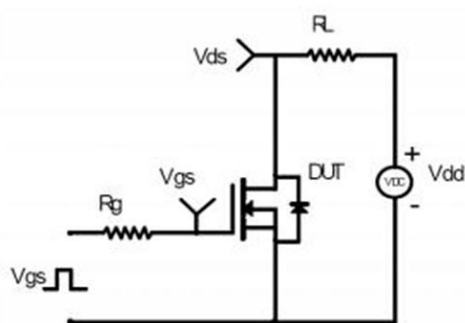
EAS Test Circuit:



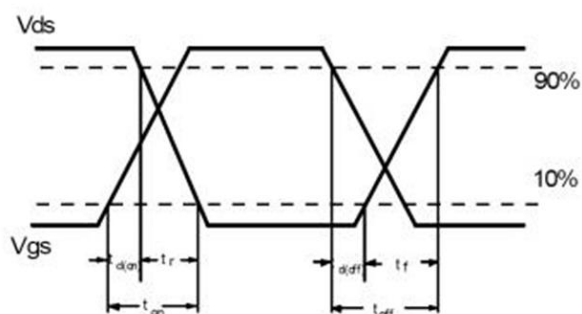
Gate Charge Test Circuit:



Switching Time Test Circuit:

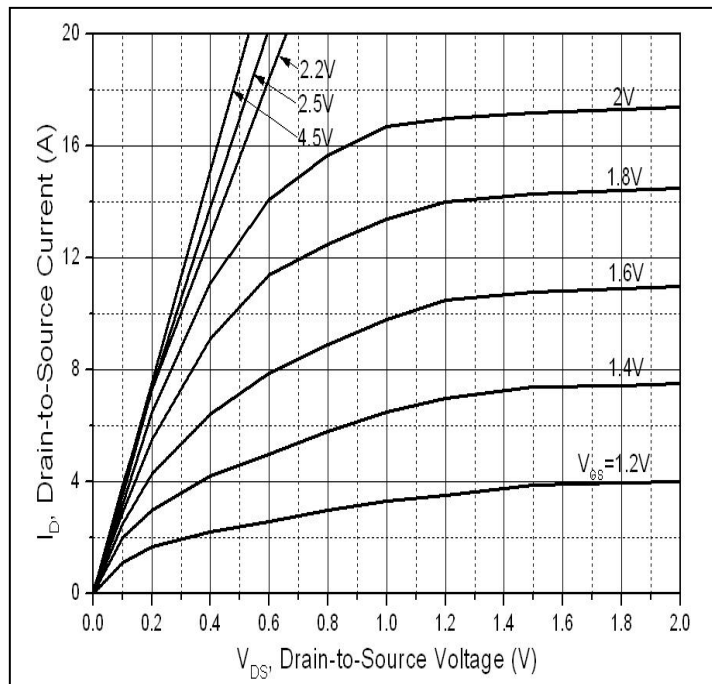
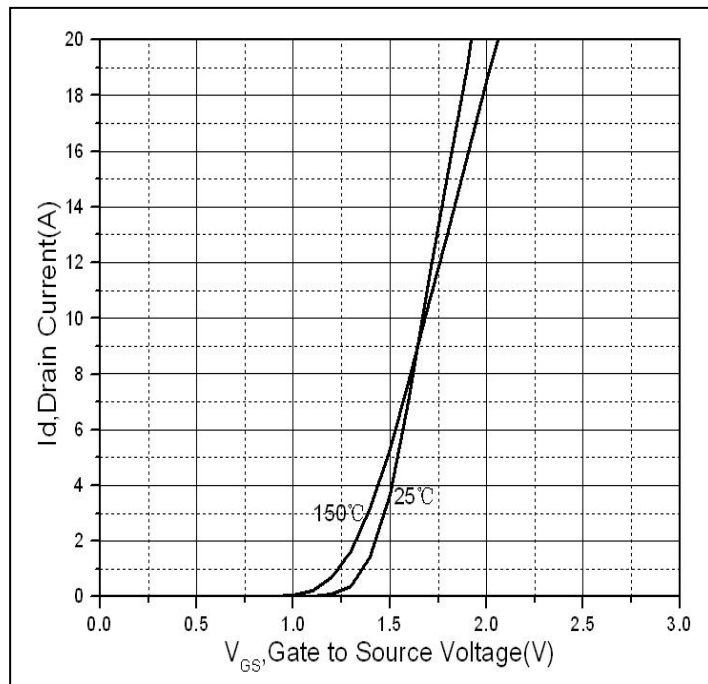
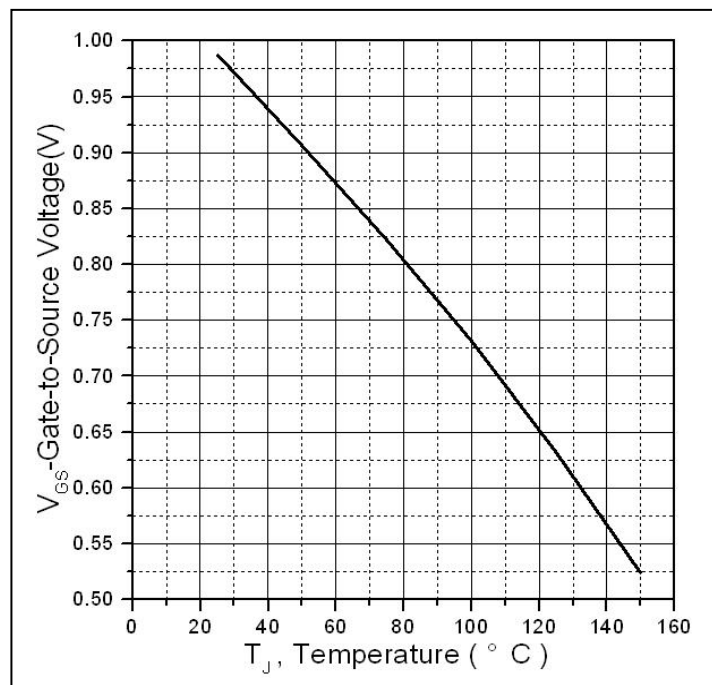
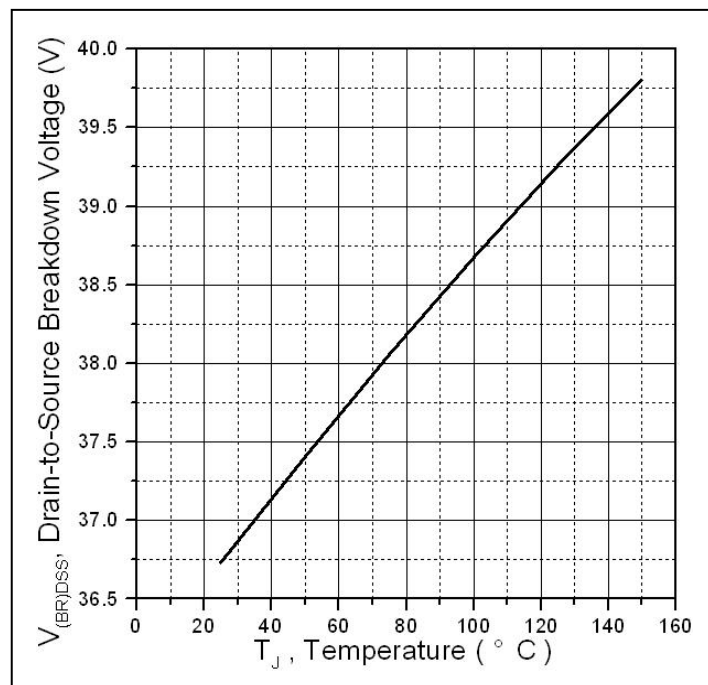


Switching Waveforms:



Notes:

- ① Calculated continuous current based on maximum allowable junction temperature.
- ② Repetitive rating; pulse width limited by max junction temperature.
- ③ The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$

Typical Electrical and Thermal Characteristics

Figure 1. Typical Output Characteristics

Figure 2. Typical Transfer Characteristics

Figure 3. Gate to source cut-off Voltage

Figure 4. Drain-to-Source Breakdown Voltage vs. Junction Temperature

Typical Electrical and Thermal Characteristics

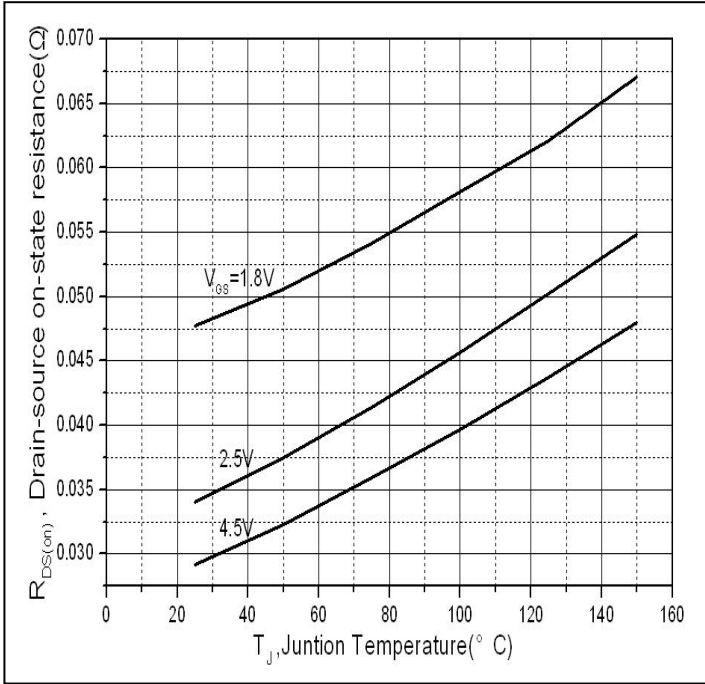


Figure 5. Normalized On-Resistance vs. Junction Temperature

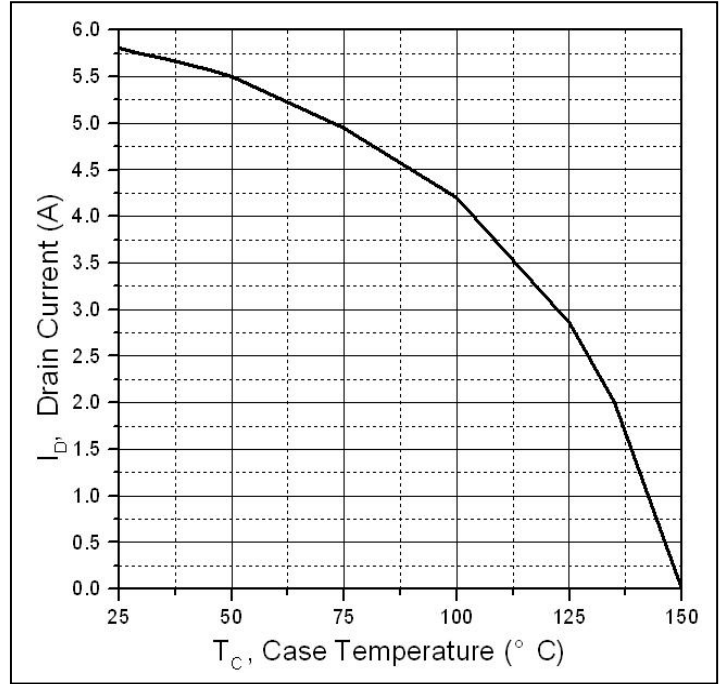


Figure 6. Maximum Drain Current vs. Case Temperature

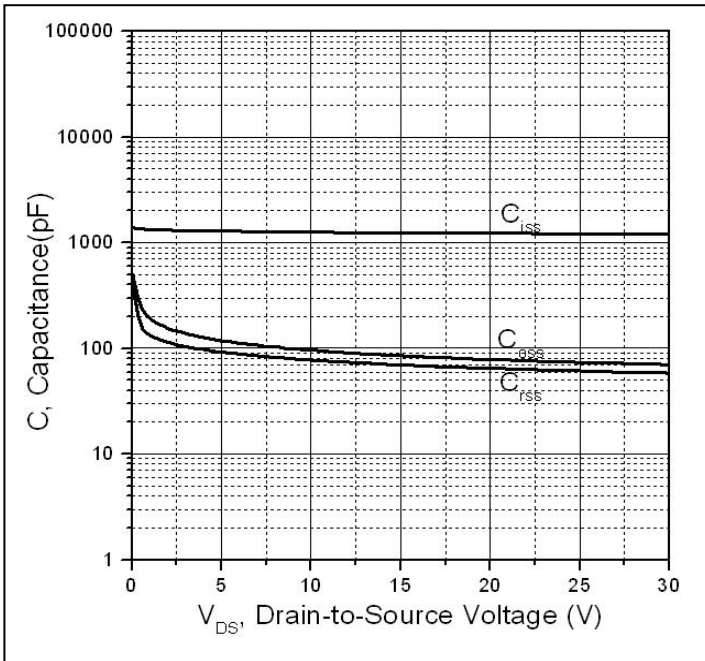


Figure 7. Typical Capacitance

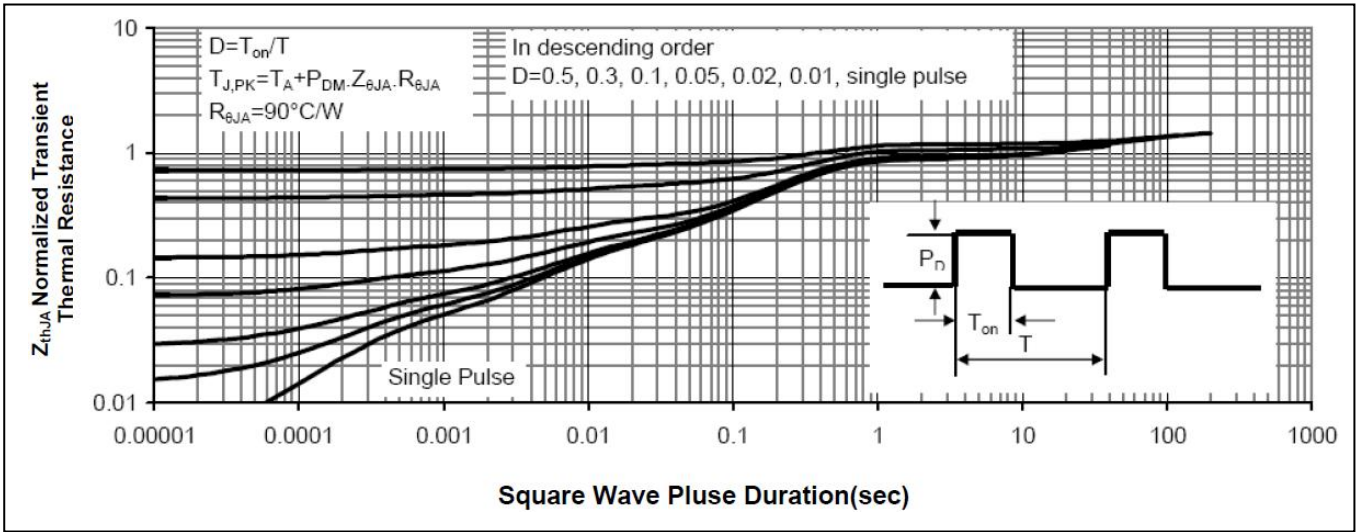
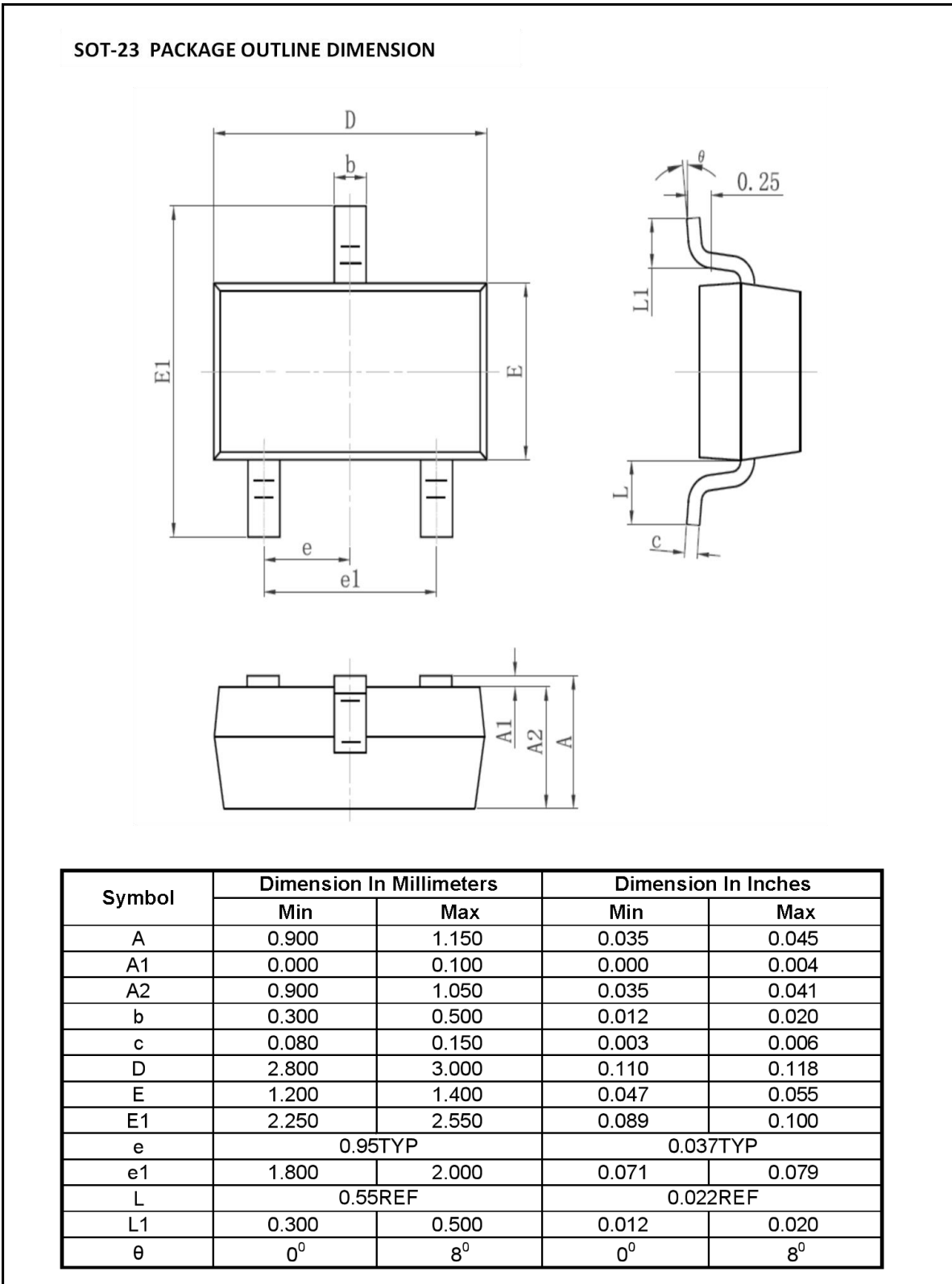


Figure8. Normalized Maximum Transient Thermal Impedance

Mechanical Data:


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