

Features

- $V_{DS} = -20V, I_D = -3A$
 $R_{DS(ON)} = 120m\Omega @ V_{GS} = -2.5V$ (Typ)
 $R_{DS(ON)} = 85m\Omega @ V_{GS} = -4.5V$ (Typ)
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

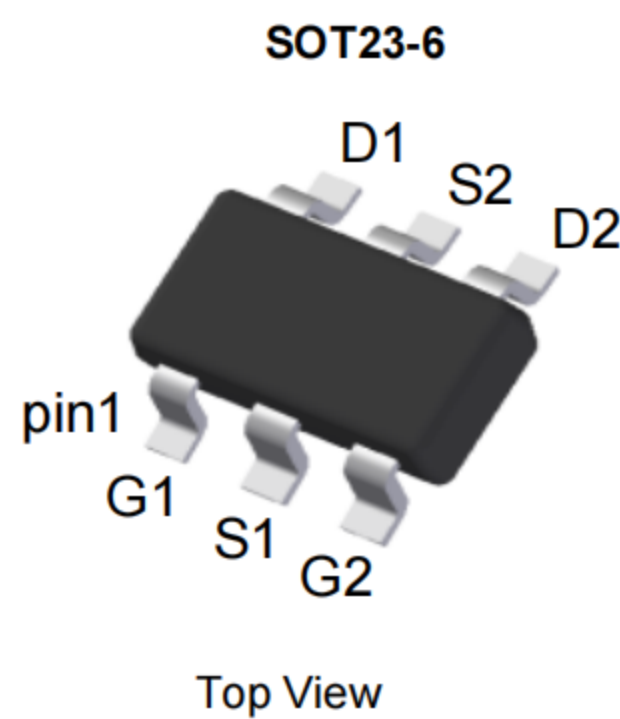
Application

- PWM applications
- Power management

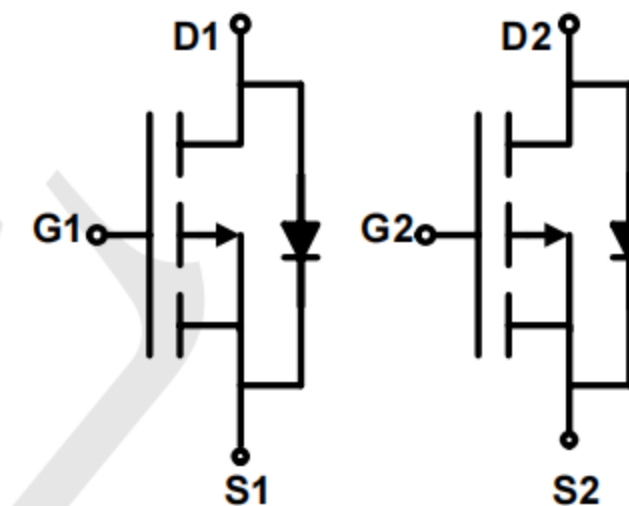
Ordering Information

- Package: SOT23-6
- Shipping Qty: 3000/7inch Tape/Reel

Package and Pin Configuration



Circuit diagram



Marking: 312F

ABSOLUTE MAXIMUM RATINGS($T_A = 25^\circ C$ unless otherwise noted)

TECH PUBLIC Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	I_D	-3	A
	I_{DM}	-10	A
Maximum Power Dissipation	P_D	1.1	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	110	$^\circ C/W$
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ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =-250μA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V			±100	nA
ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.5		-1	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-3A		85	100	mΩ
		V _{GS} =-2.5V, I _D =-2A		120	150	
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-3A		7		S
DYNAMIC CHARACTERISTICS (Note4)						
Input Capacitance	C _{ISS}	V _{DS} =-10V, V _{GS} =0V, F=1.0MHz		300		PF
Output Capacitance	C _{OSS}			65		PF
Reverse Transfer Capacitance	C _{RSS}			50		PF
SWITCHING CHARACTERISTICS (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-10V, I _D =-1A V _{GS} =-4.5V, R _{GEN} =6Ω		12		nS
Turn-on Rise Time	t _r			15		nS
Turn-Off Delay Time	t _{d(off)}			80		nS
Turn-Off Fall Time	t _f			45		nS
Total Gate Charge	Q _g	V _{DS} =-10V, I _D =-3A, V _{GS} =-4.5V		6		nC
Gate-Source Charge	Q _{gs}			1		nC
Gate-Drain Charge	Q _{gd}			2.4		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =-1.25A			-1.2	V

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

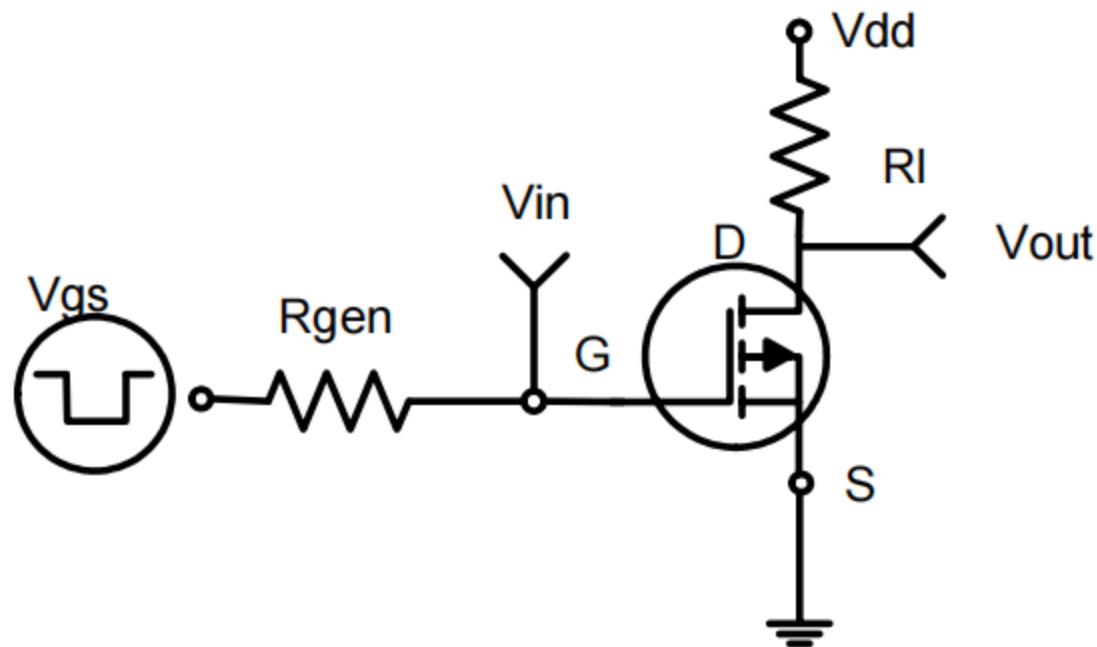


Figure1:Switching Test Circuit

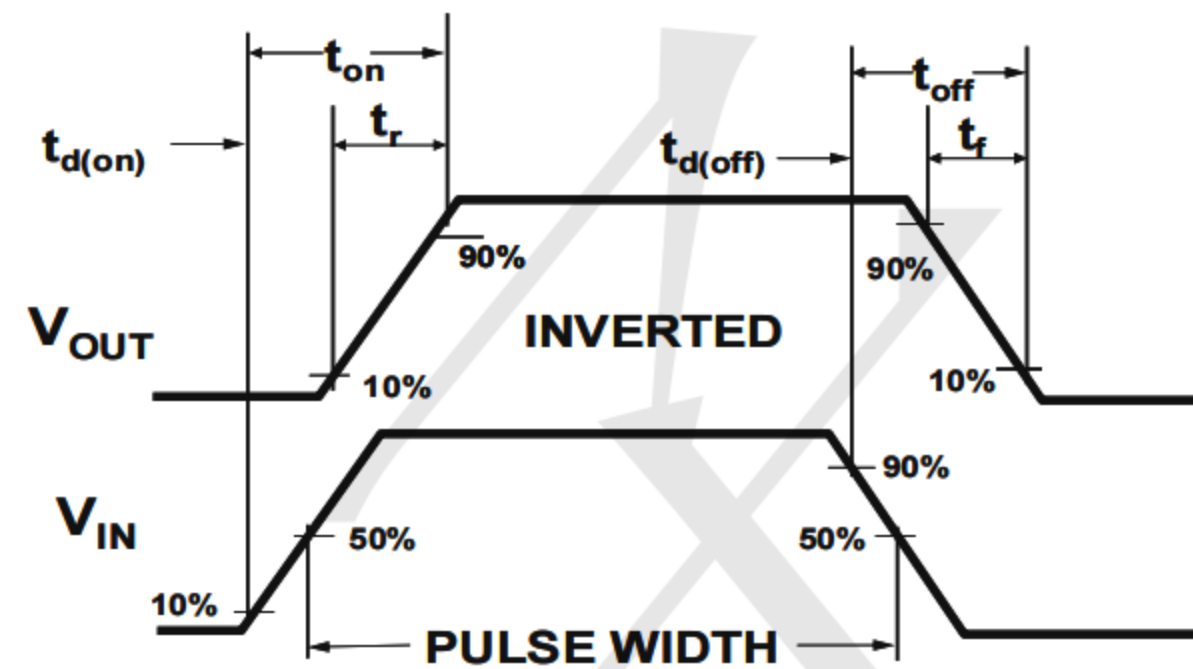


Figure 2:Switching Waveforms

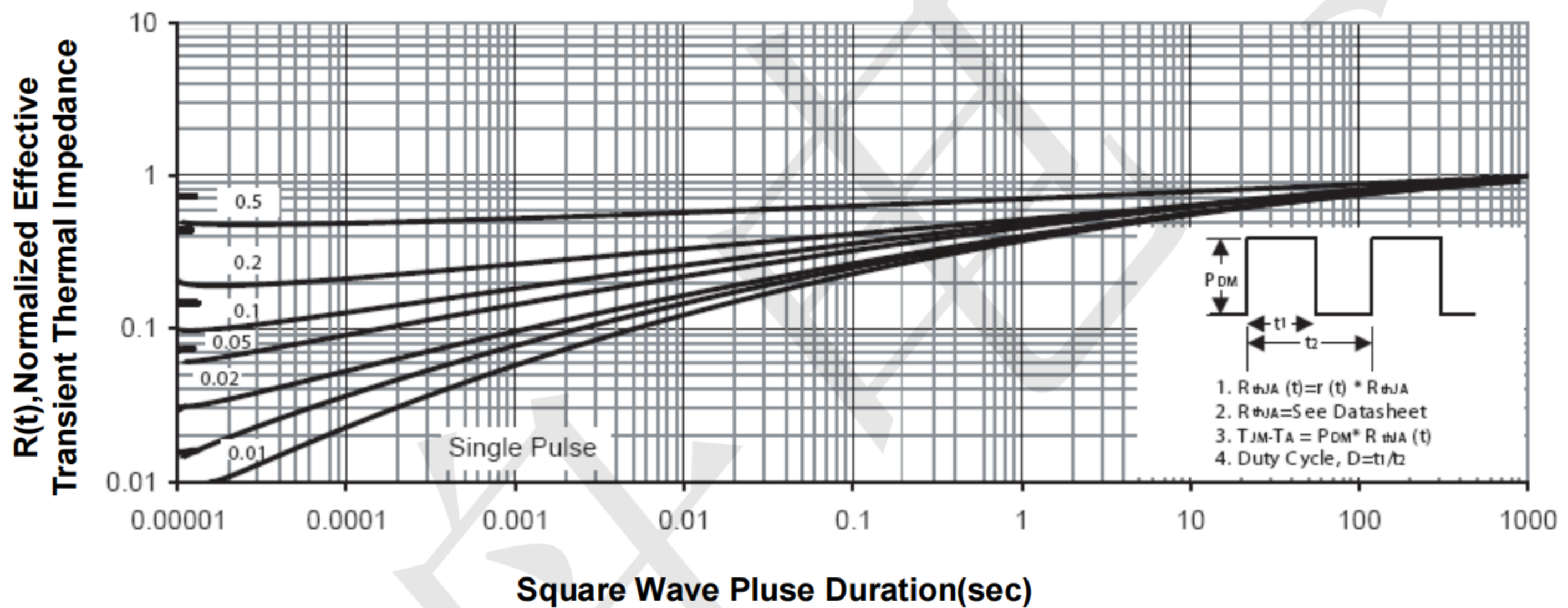
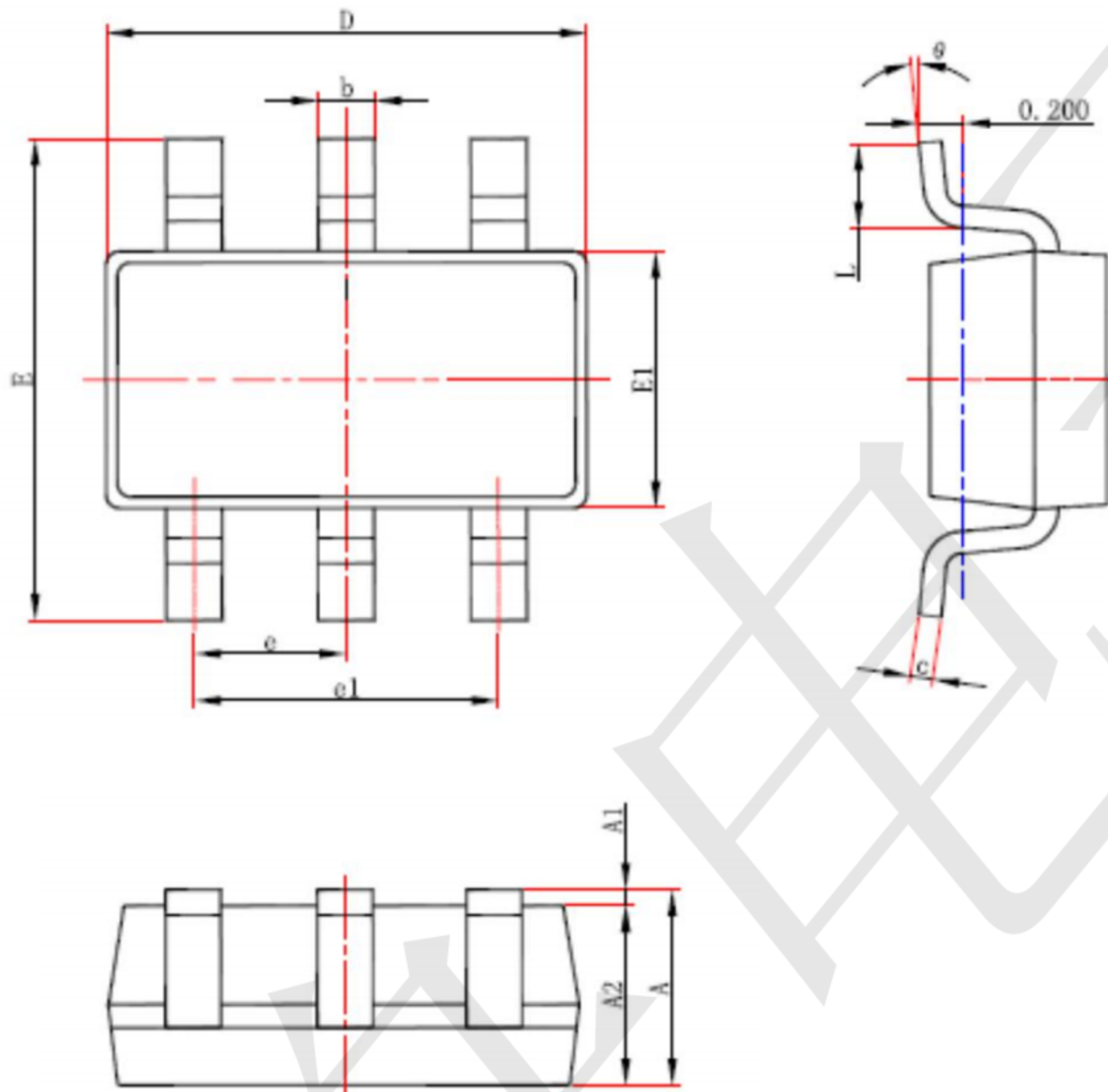


Figure 3: Normalized Maximum Transient Thermal Impedance

SOT23-6 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°