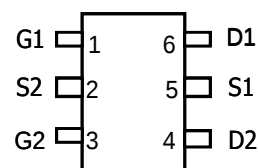
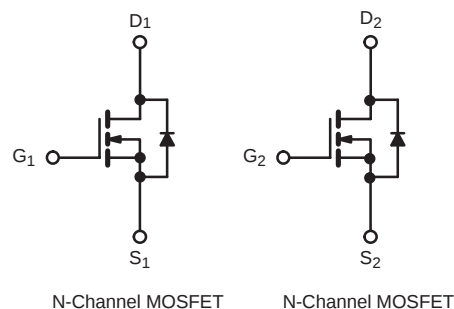


PRODUCT SUMMARY

- $V_{DS} = 20V$
- $R_{DS(ON)} < 30m\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 43m\Omega$ ($V_{GS} = 4.5V$)



SOT23-6

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current ($T_J = 150^\circ C$)	I_D	$T_C = 25^\circ C$	6.0
		$T_C = 70^\circ C$	4.0
		$T_A = 25^\circ C$	3.5 ^{b, c}
		$T_A = 70^\circ C$	2.8 ^{b, c}
Pulsed Drain Current	I_{DM}	18	
Continuous Source-Drain Diode Current	I_S	$T_C = 25^\circ C$	1.17
		$T_A = 25^\circ C$	0.95 ^{b, c}
Maximum Power Dissipation	P_D	$T_C = 25^\circ C$	1.6
		$T_C = 70^\circ C$	1.0
		$T_A = 25^\circ C$	1.14 ^{b, c}
		$T_A = 70^\circ C$	0.73 ^{b, c}
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to 150	$^\circ C$
Soldering Recommendations (Peak Temperature) ^{d, e}		260	

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^{b, d}	R_{thJA}	93	110	$^\circ C/W$
Maximum Junction-to-Foot	R_{thJF}	75	90	

Notes:

- $T_C = 25^\circ C$.
- Surface Mounted on 1" x 1" FR4 board.
- $t = 5s$.
- Maximum under steady state conditions is $150^\circ C/W$.

SPECIFICATIONS $T_J = 25\text{ }^{\circ}\text{C}$, unless otherwise noted

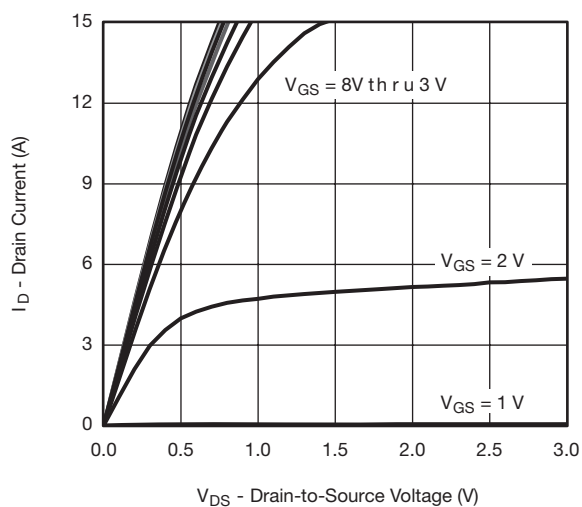
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = 250 μA	20			V
V _{DS} Temperature Coefficient	ΔV _{DS} /T _J	I _D = 250 μA		29		mV/°C
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)} /T _J			- 4		
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.4		1.5	V
Gate-Source Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20 V, V _{GS} = 0 V			1	μA
		V _{DS} = 20 V, V _{GS} = 0 V, T _J = 55 °C			10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	10			A
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} = 10 V, I _D = 3.4 A		30		mΩ
		V _{GS} = 4.5 V, I _D = 3.0 A		43		
Forward Transconductance ^a	g _{fs}	V _{DS} = 10 V, I _D = 3.4 A		10		S
Dynamic ^b						
Input Capacitance	C _{iss}	V _{DS} = 10 V, V _{GS} = 0 V, f = 1 MHz		400		pF
Output Capacitance	C _{oss}			55		
Reverse Transfer Capacitance	C _{rss}			26		
Total Gate Charge	Q _g	V _{DS} = 10 V, V _{GS} = 10 V, I _D = 3.4 A		3.7	6	nC
		V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 3.4 A		1.8	3	
Gate-Source Charge	Q _{gs}			0.74		
Gate-Drain Charge	Q _{gd}			0.42		
Gate Resistance	R _g	f = 1 MHz	1	5	10	Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10 V, R _L = 5.6 Ω I _D ≅ 2.7 A, V _{GEN} = 4.5 V, R _g = 1 Ω		10	20	ns
Rise Time	t _r			15	30	
Turn-Off Delay Time	t _{d(off)}			10	20	
Fall Time	t _f			10	20	
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10 V, R _L = 5.6 Ω I _D ≅ 2.7 A, V _{GEN} = 10 V, R _g = 1 Ω		5	10	
Rise Time	t _r			15	30	
Turn-Off Delay Time	t _{d(off)}			10	20	
Fall Time	t _f			10	20	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I _S	T _C = 25 °C		1.2		A
Pulse Diode Forward Current	I _{SM}			18		
Body Diode Voltage	V _{SD}	I _S = 2.7 A, V _{GS} = 0 V		0.85	1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _F = 2.7 A, dI/dt = 100 A/μs, T _J = 25 °C		10	20	ns
Body Diode Reverse Recovery Charge	Q _{rr}			4	10	nC
Reverse Recovery Fall Time	t _a			6		ns
Reverse Recovery Rise Time	t _b			4		

Notes:

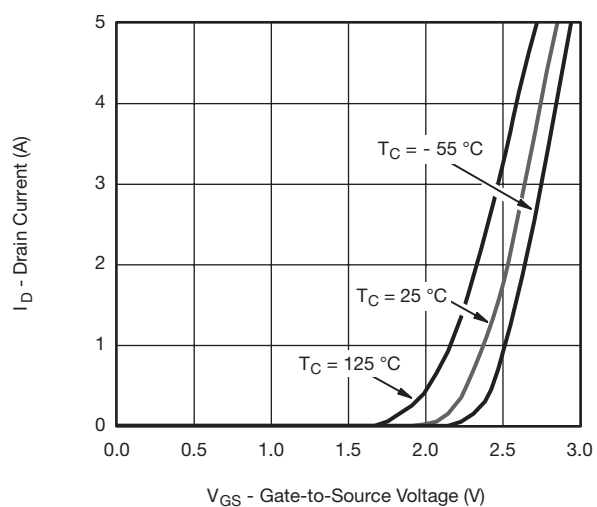
a. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

b. Guaranteed by design, not subject to production testing.

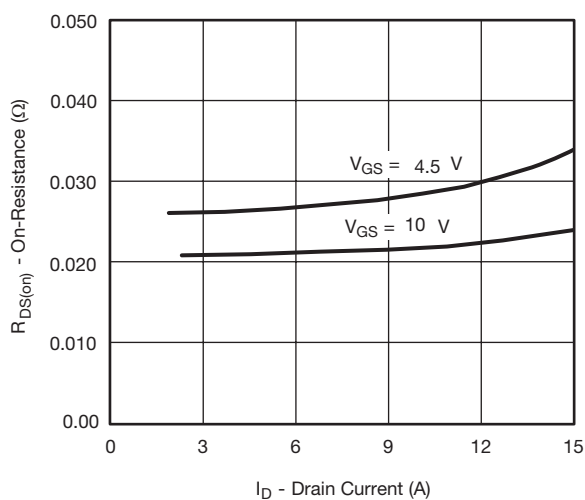
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



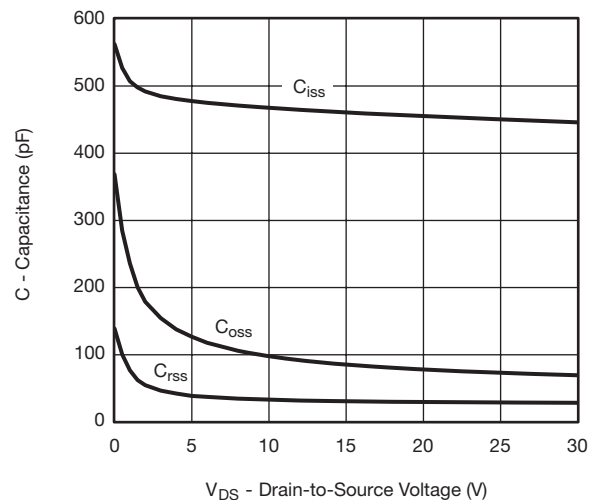
Output Characteristics



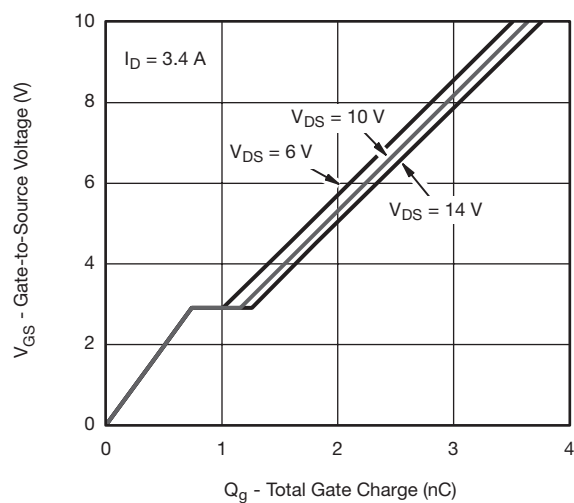
Transfer Characteristics



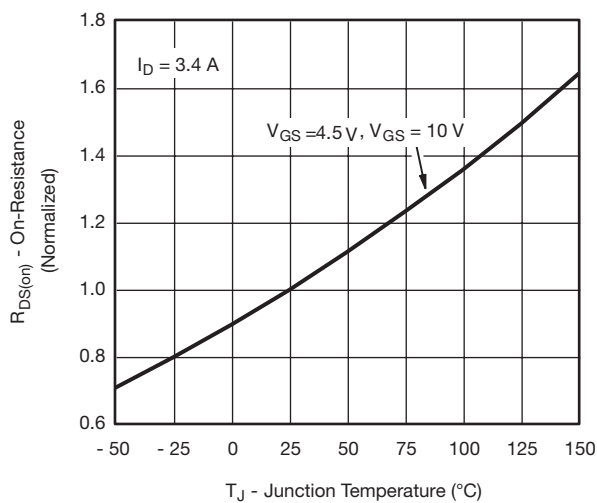
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

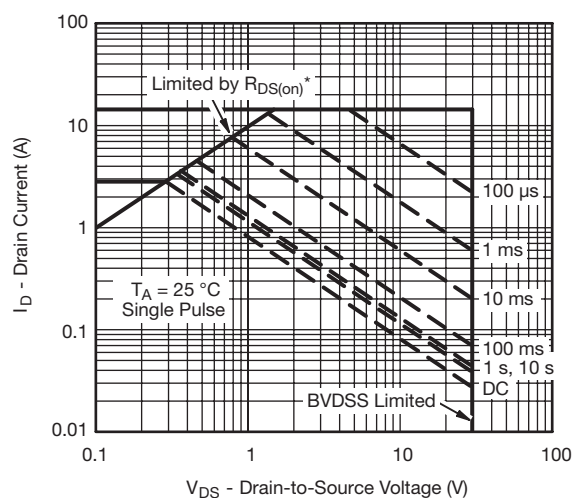
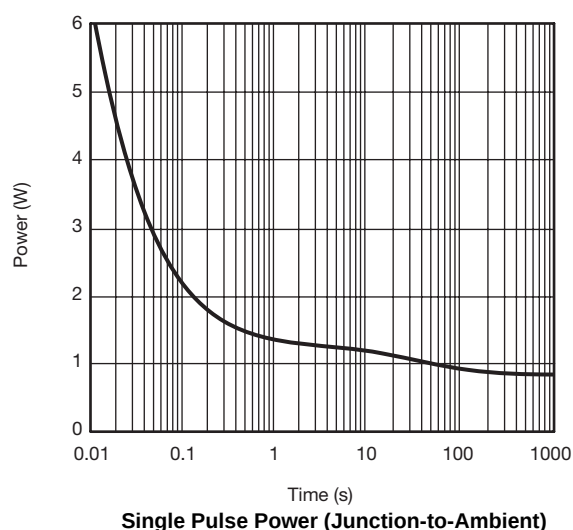
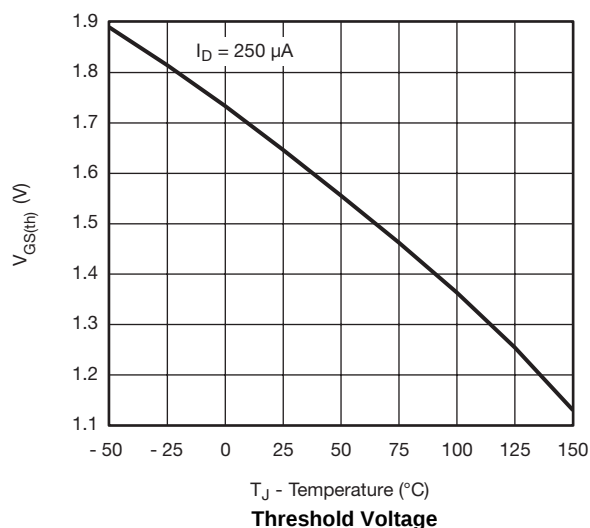
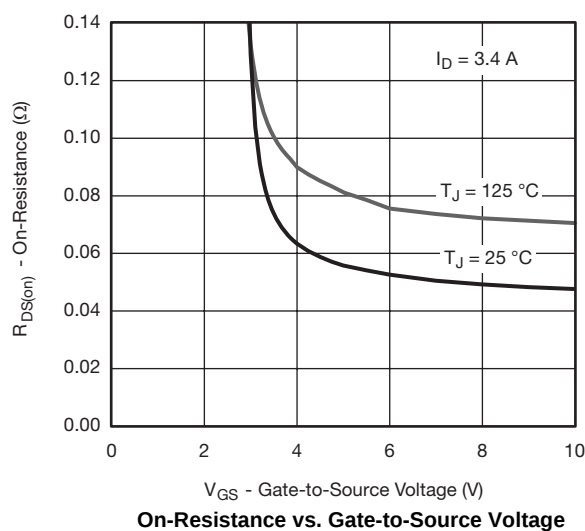
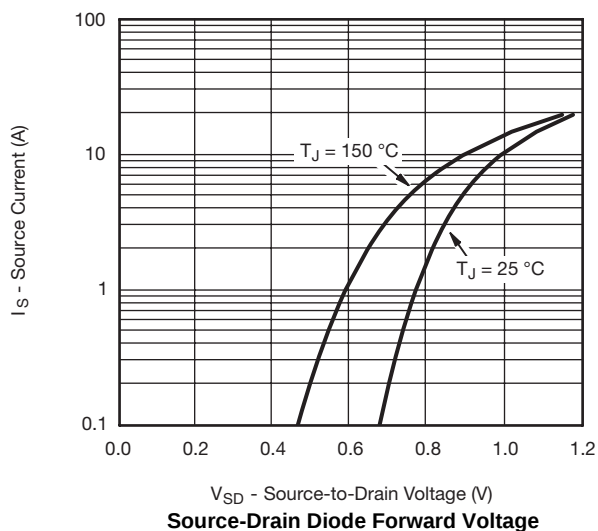


Gate Charge



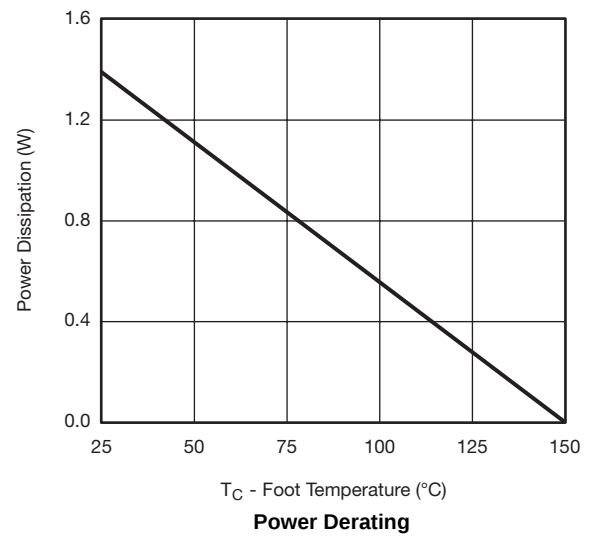
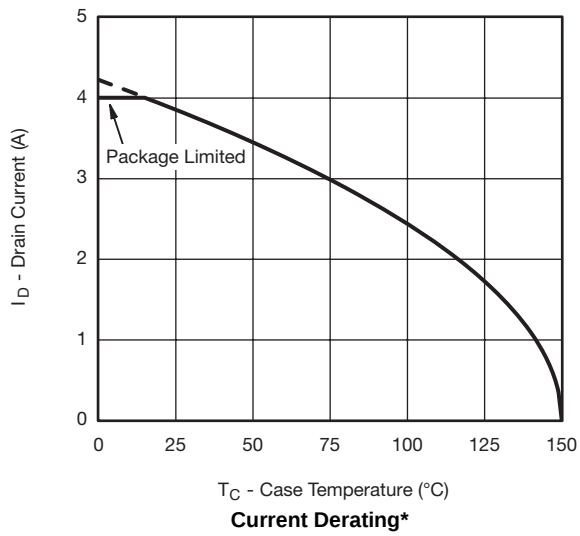
On-Resistance vs. Junction Temperature

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



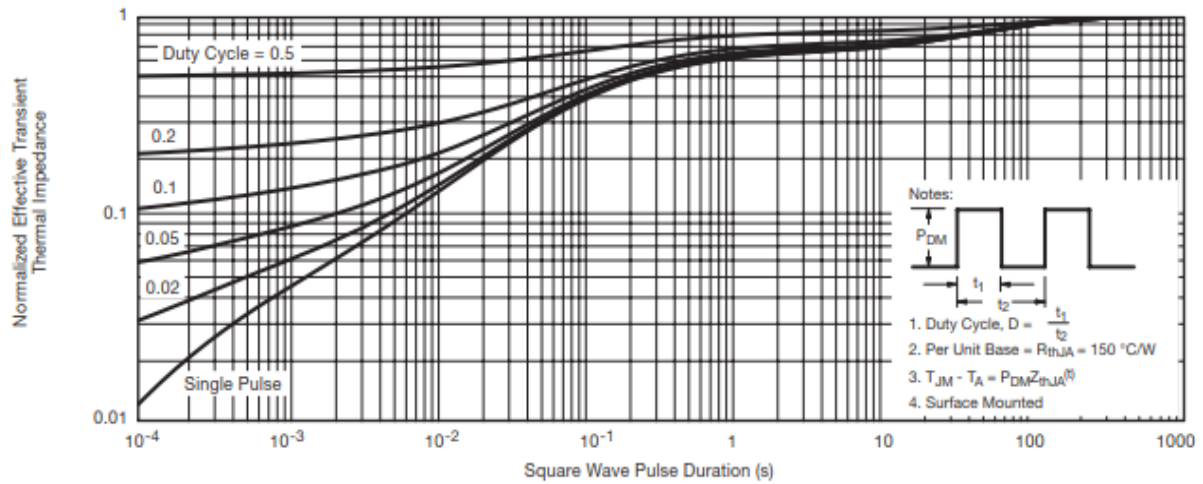
* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified
Safe Operating Area, Junction-to-Ambient

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

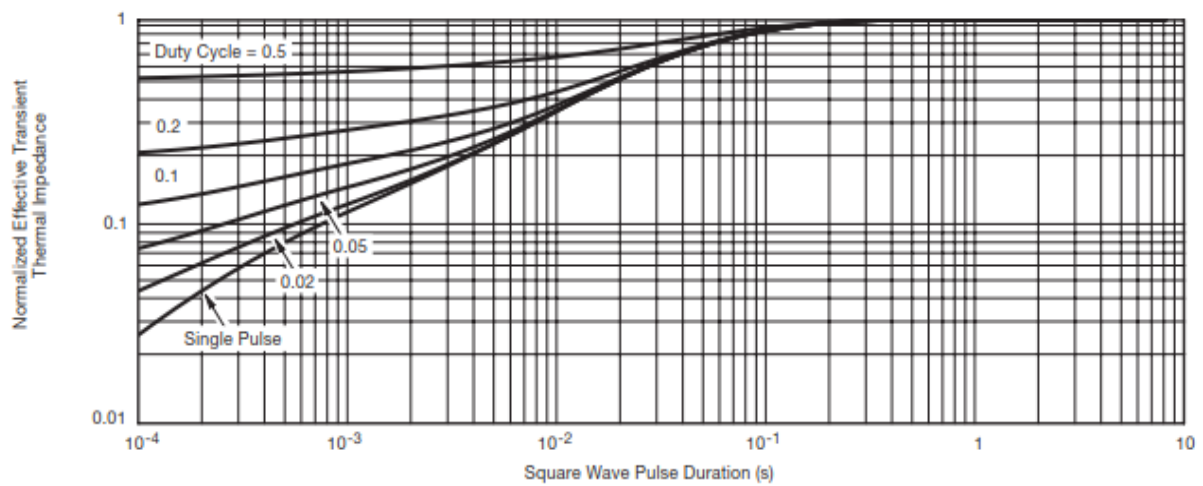


* The power dissipation P_D is based on $T_{J(max)} = 150$ °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

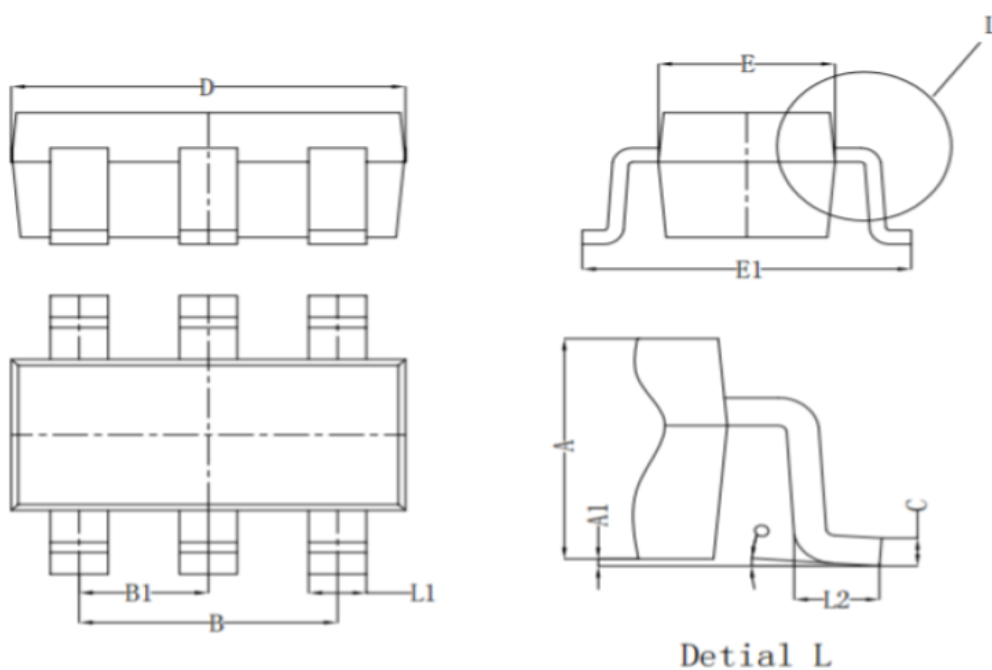


Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

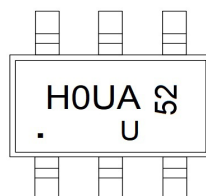
SOT23- 6 PACKAGE OUTLIE DIMENSIONS



Detial L

Symbol	Dim in mm		
	Min	Nor	Max
A	1.050	1.100	1.150
A1	0.000	0.050	0.100
L1	0.300	0.400	0.500
C	0.100	0.150	0.200
D	2.820	2.920	3.020
E	1.500	1.600	1.700
E1	2.650	2.800	2.950
B	1.800	1.900	2.000
B1	0.950 TYP		
L2	0.300	0.450	0.600
o	0°	4°	8°

Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
UMW AO6800	SOT23-6	3000	Tape and reel