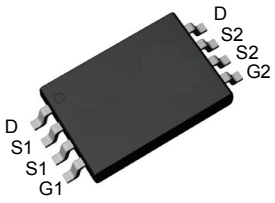
Features

- 20V/12A,
  $R_{DS(ON)}$= 12.5mΩ(typ.) @ V_{GS}= 4.5V
  $R_{DS(ON)}$= 16mΩ(typ.) @ V_{GS}= 2.5V
- 100% UIS Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)
- ESDprotection

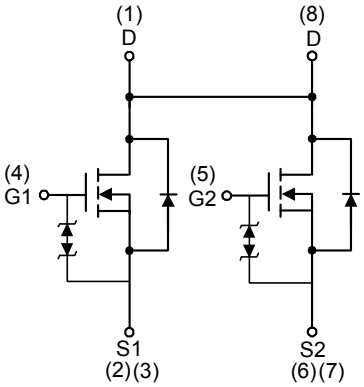
Applications

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

Pin Description



Top View of TSSOP8



N-Channel MOSFET

Absolute Maximum Ratings (T_A = 25°C unless otherwise noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±12	
I_D	Continue Drain Current	T_A=25°C	12	A
		T_A=70°C	4.8	
I_{DM}	Pulsed Drain Current	T_A=25°C	36	
I_S	Diode continuous forward current		12	A
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	
P_D	Maximum Power Dissipation	T_A=25°C	1.25	W
		T_A=70°C	0.8	
$R_{\theta JA}$*	Thermal Resistance-Junction to Ambient		100	°C/W

Note * : Surface Mounted on 1in^2 pad area, t ≤ 10sec.

Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V, V_{GS}=0V	-	-	1	μA
		T_J=85°C	-	-	30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	0.5	0.7	1.1	V
I_{GSS}	Gate Leakage Current	V_{GS}=±10V, V_{DS}=0V	-	-	±10	uA
$R_{DS(ON)}$ [a]	Drain-Source On-state Resistance	V_{GS}=4.5V, I_{DS}=4A	-	12.5	14.5	mΩ
		V_{GS}=2.5V, I_{DS}=3A	-	16	19	
Diode Characteristics						
V_{SD} [a]	Diode Forward Voltage	I_{SD}=1A, V_{GS}=0V	-	0.7	1.3	V
t_{rr}	Reverse Recovery Time	I_{SD}=7.5A, dI_{SD}/dt=100A/μs	-	10	-	nS
Q_{rr}	Reverse Recovery Charge		-	3.5	-	nC
Dynamic Characteristics [b]						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	-	8	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=10V, Frequency=1.0MHz	-	713	-	pF
C_{oss}	Output Capacitance		-	118	-	
C_{rss}	Reverse Transfer Capacitance		-	96	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=10V, R_L=10Ω, I_{DS}=1A, V_{GEN}=4.5V, R_G=6Ω	-	9	16	ns
t_r	Turn-on Rise Time		-	13	23	
$t_{d(OFF)}$	Turn-off Delay Time		-	55	99	
t_f	Turn-off Fall Time		-	36	65	
Gate Charge Characteristics [b]						
Q_g	Total Gate Charge	V_{DS}=10V, V_{GS}=4.5V, I_{DS}=7.5A	-	9.8	12.8	nC
Q_{gs}	Gate-Source Charge		-	0.5	-	
Q_{gd}	Gate-Drain Charge		-	3.6	-	

Note a Pulse test ; pulse width≤300μs, duty cycle≤2%.
Note b Guaranteed by design, not subject to production testing.

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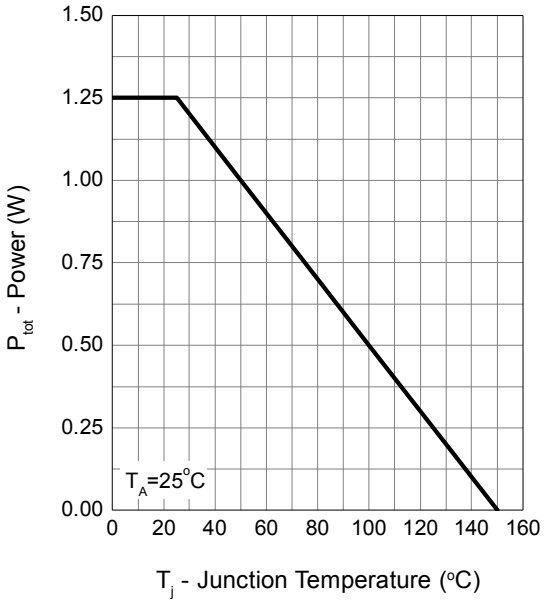
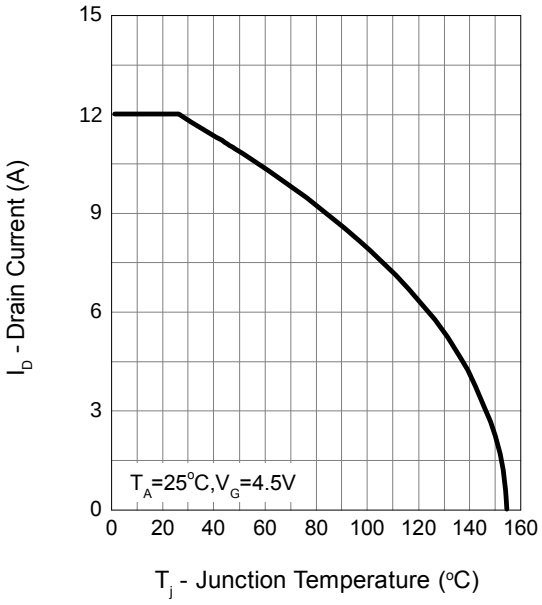
Typical Operating Characteristics

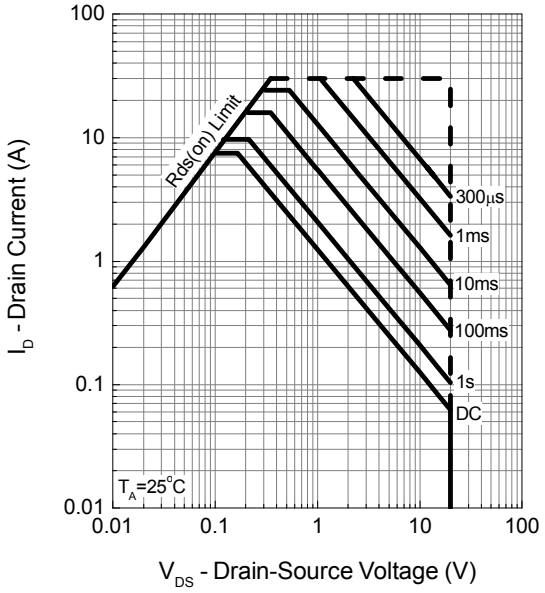
Power Dissipation



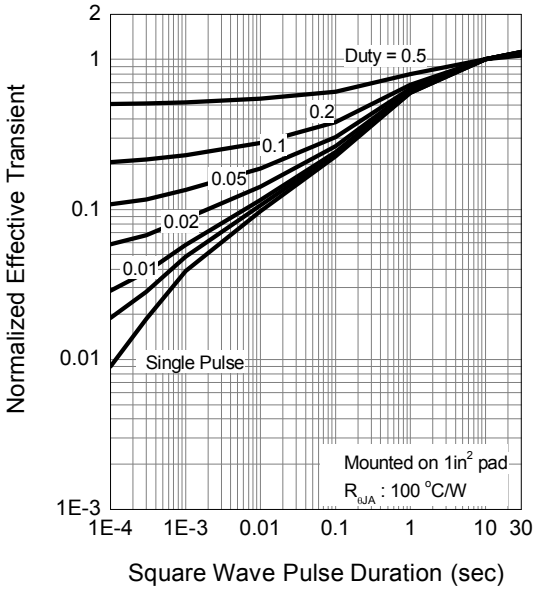
Drain Current



Safe Operation Area

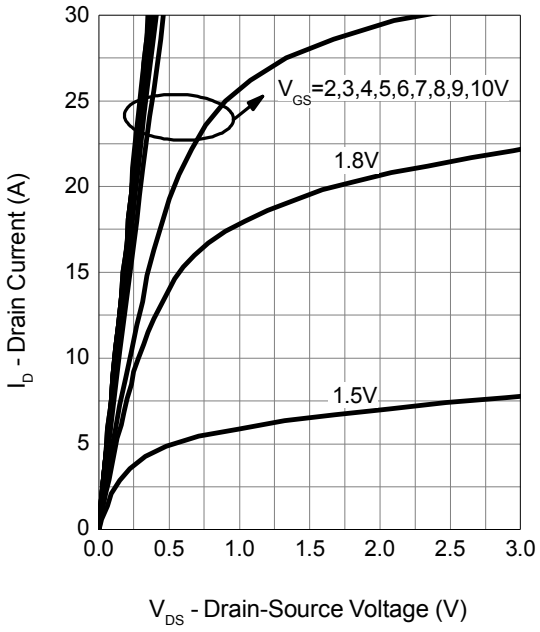


Thermal Transient Impedance

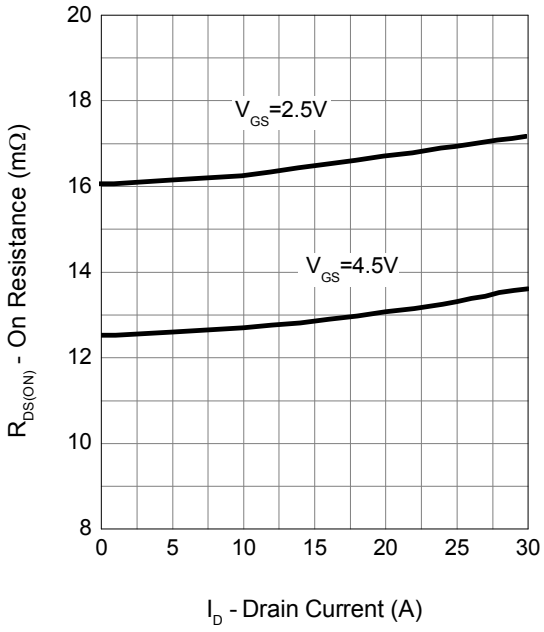


Typical Operating Characteristics (Cont.)

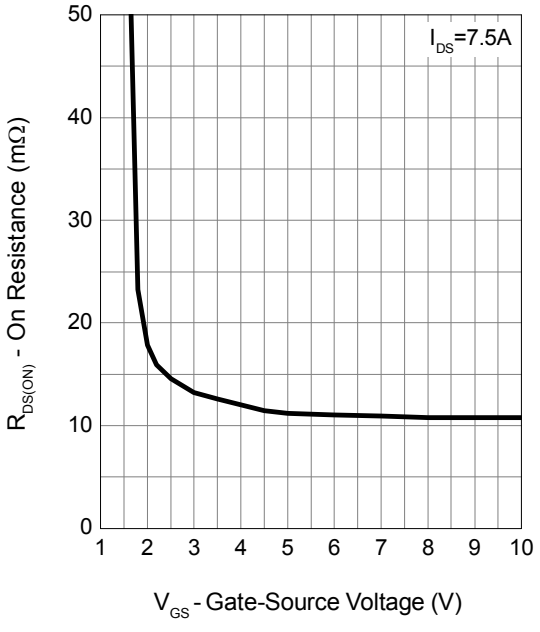
Output Characteristics



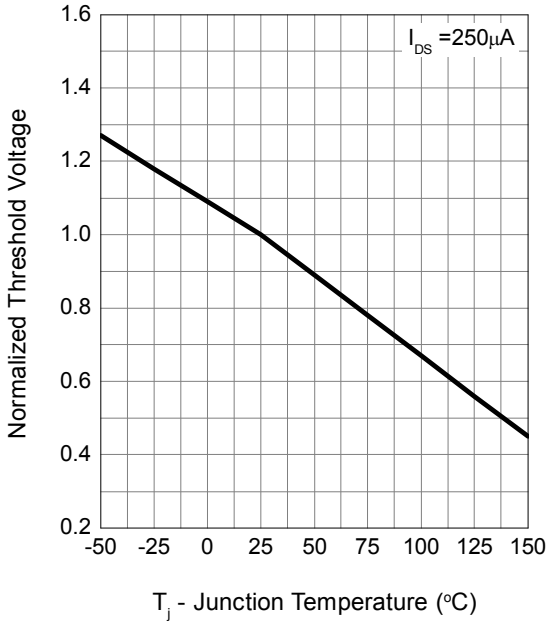
Drain-Source On Resistance



Gate-Source On Resistance

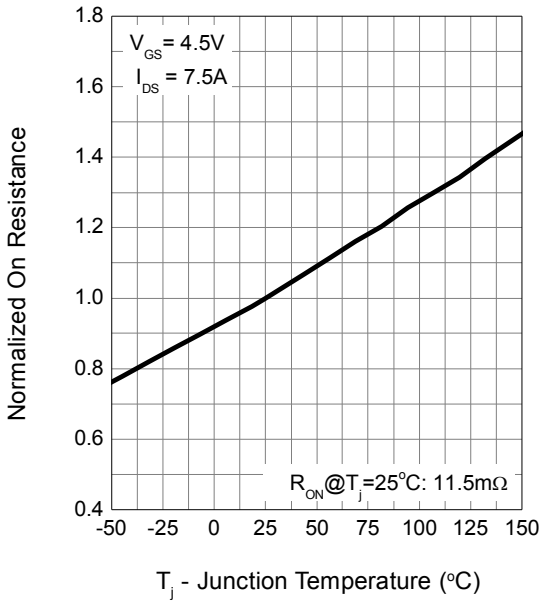


Gate Threshold Voltage

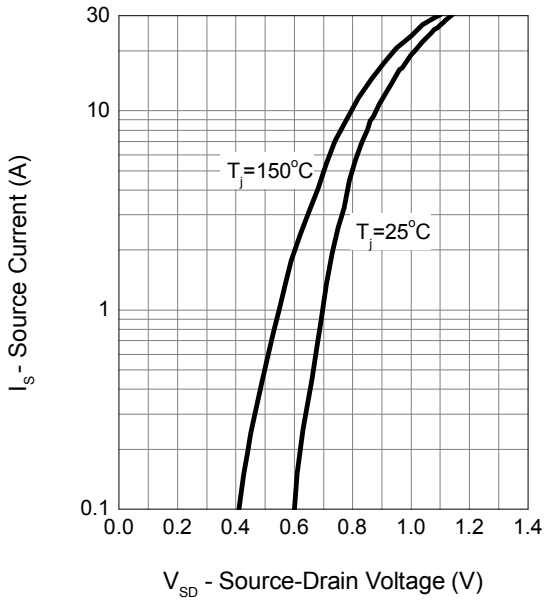


Typical Operating Characteristics (Cont.)

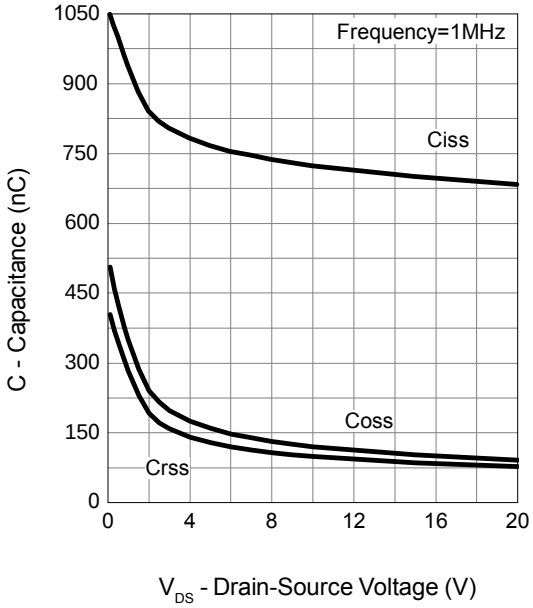
Drain-Source On Resistance



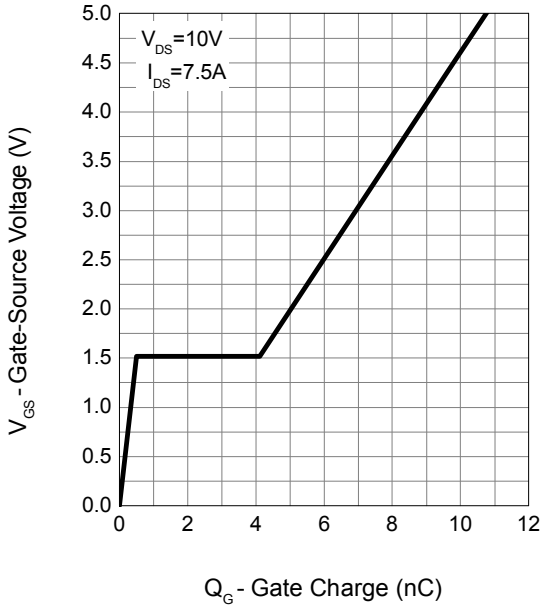
Source-Drain Diode Forward



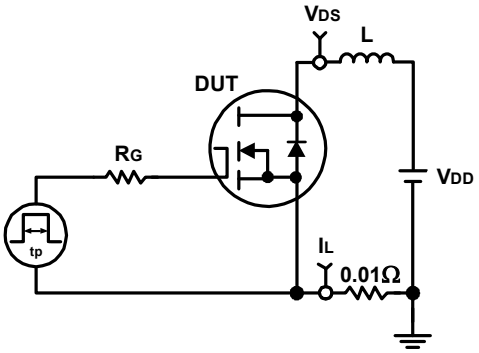
Capacitance

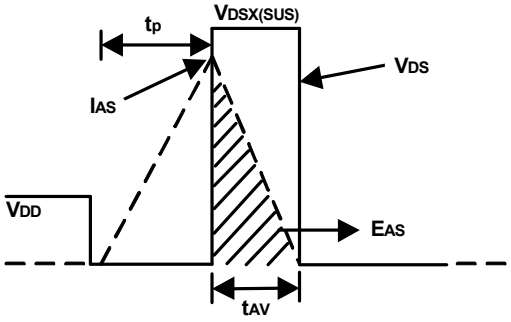


Gate Charge

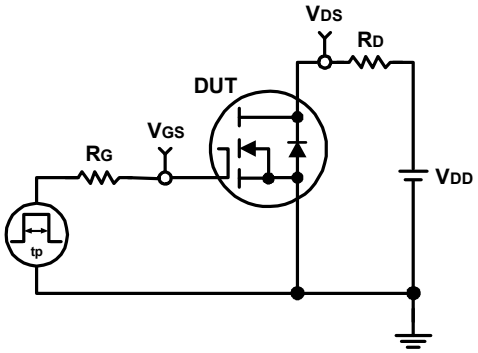


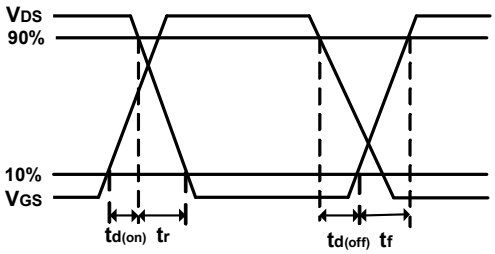
Avalanche Test Circuit and Waveforms



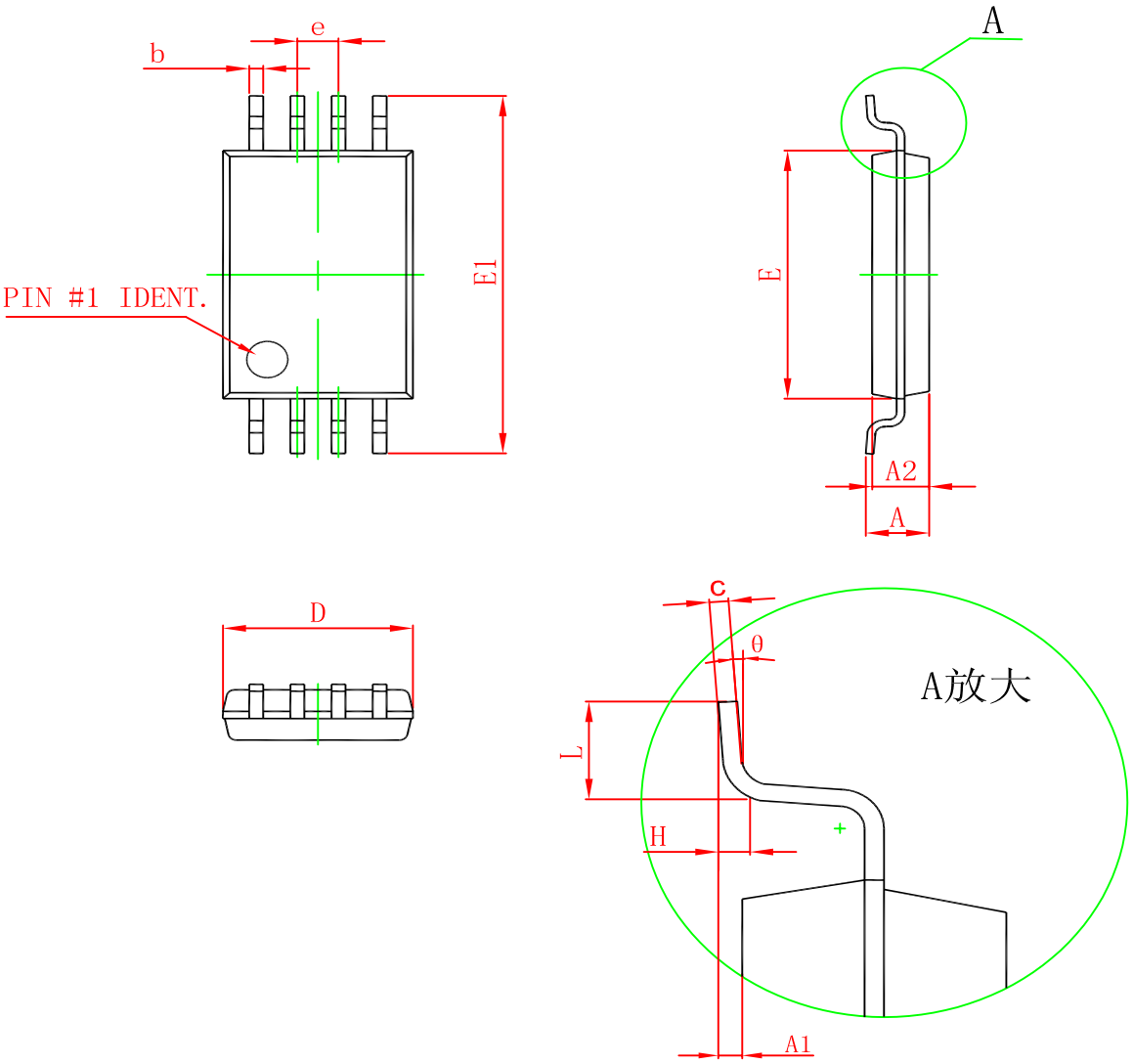


Switching Time Test Circuit and Waveforms





■ *TSSOP8 PACKAGE OUTLINE DIMENSIONS*



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.100		0.043
A2	0.800	1.000	0.031	0.039
A1	0.020	0.150	0.001	0.006
e	0.65 (BSC)		0.026 (BSC)	
L	0.500	0.700	0.020	0.028
H	0.25 (TYP)		0.01 (TYP)	
θ	1°	7°	1°	7°