Dual N-Channel 20V(D-S) MOSFET

Product summary		
V_{DS}	20	V
$R_{DS(ON)}$(at V_{GS}=4.5V) Typ.	22	mΩ
$R_{DS(ON)}$(at V_{GS}=2.5V) Typ.	30	mΩ
I_D(Tc=25℃)	5	A

Features

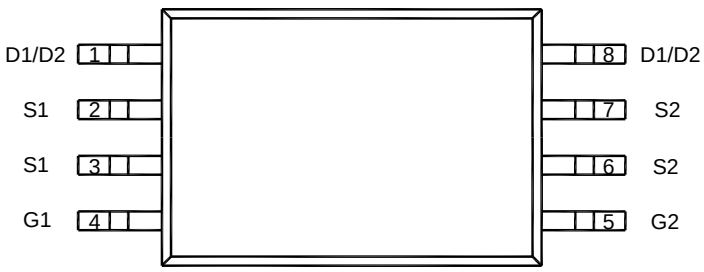
- High density cell trench design for low Rds(on)
- Surface mount package
- RoHS and Halogen-Free compliant

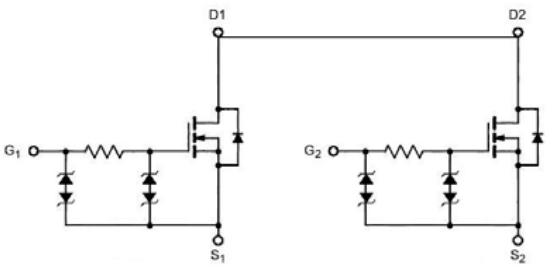
Applications

- Li-ion battery management applications

Pin Configuration

TSSOP8 TOP VIEW





Packing Information

Device	Marking	Reel Size	Tape Width	Quantity
ECG8205A	82A .XXX	13'	12mm	3000pcs

Absolute Maximum Ratings (at TA=25℃ Unless Otherwise Noted)

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		20	V
V_{GS}	Gate-Source Voltage		±10	V
I_D	Continuous Drain Current at V_{GS}=10V	T_C=25℃	5	A
		T_C=70℃	4.1	A
I_{DM}	Pulse Drain Current Tested		20	A
P_D	Power Dissipation	T_C=25℃	1.25	W
T_J,T_{STG}	Junciton and Storage Temperature Range		-55 to 150	℃

Thermal Characteristics

Symbol	Parameter	Typical	Units
$R_{\theta JA}$	Thermal Resistance-Junction to ambient	69	℃/W

Electrical Characteristics (at TJ =25℃ Unless Otherwise Noted)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
Static Parameters						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	20	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V,V_{GS}=0V	--	--	1	uA
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V,V_{GS}=±12V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	0.45	0.6	0.8	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=4.5V,I_D=4A	--	19	22	mΩ
		V_{GS}=2.5V,I_D=3A	--	25	30	mΩ
V_{SD}	Forward Voltage	I_{SD}=1.7A,V_{GS}=0V	--	0.7	1.3	V
Dynamic Parameters						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=10V f=1MHZ	--	595	--	pF
C_{oss}	Output Capacitance		--	90	--	pF
C_{rss}	Reverse Transfer Capacitance		--	71	--	pF
Q_g	Total Gate Charge	V_{DS}=10V,I_D=5A V_{GS}=4.5V	--	12	--	nC
Q_{gs}	Gate-Source Charge		--	2.1	--	nC
Q_{gd}	Gate-Drain Charge		--	3.3	--	nC
Switching Parameters						
$t_{D(on)}$	Turn-on Delay Time	V_{DS}=10V,I_D=5A R_G=6Ω,V_{GS}=4.5V	--	23	--	nS
t_r	Turn-on Rise Time		--	30	--	nS
$t_{D(off)}$	Turn-off Delay Time		--	56	--	nS
t_f	Turn-off Fall Time		--	21	--	nS
t_{rr}	Reverse Recovery Time	I_F=5A di/dt=100A/us	--	14	--	nS
Q_{rr}	Reverse Recovery Charge		--	5	--	nC

Typical Characteristics

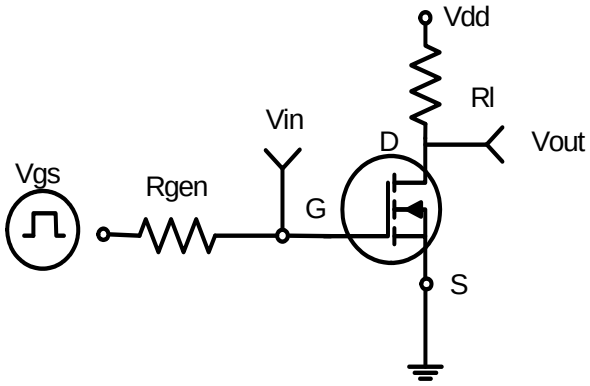


Figure 1:Switching Test Circuit

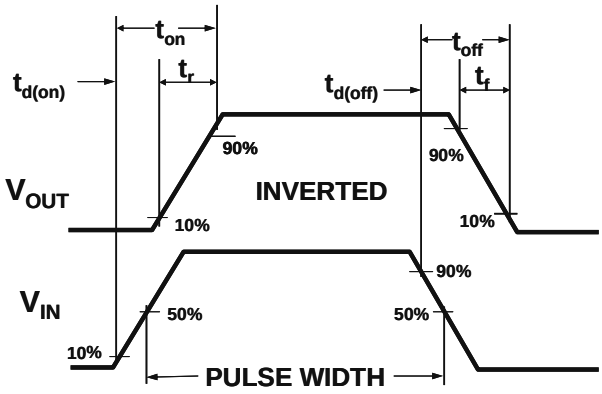


Figure 2:Switching Waveforms

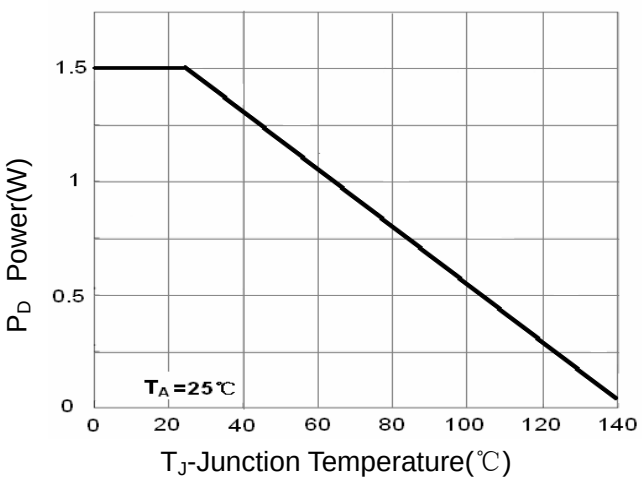


Figure 3 Power Dissipation

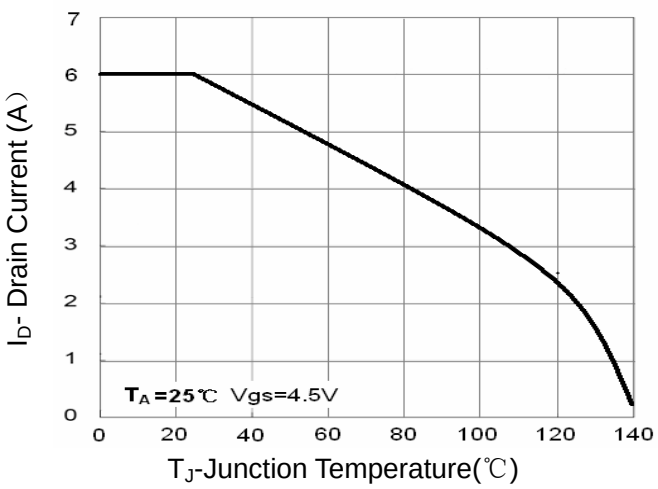


Figure 4 Drain Current

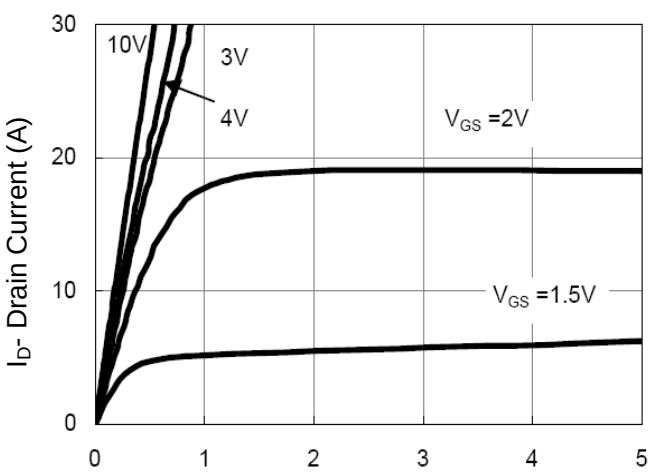


Figure 5 Output CHARACTERISTICS

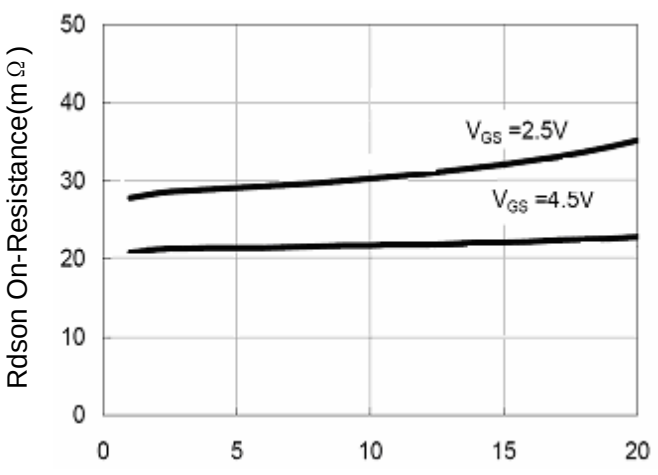


Figure 6 Drain-Source On-Resistance

Typical Characteristics

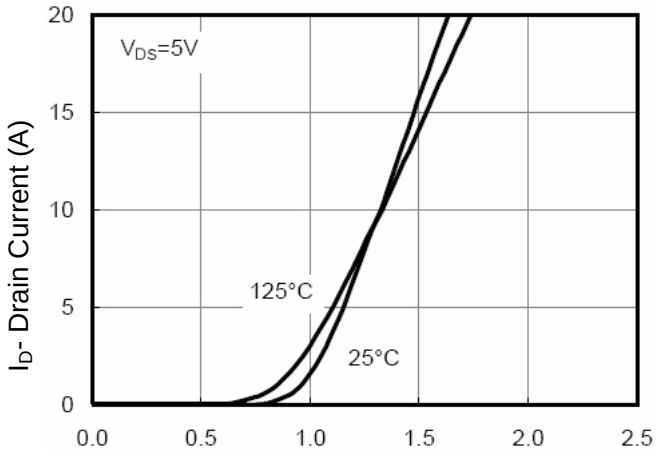


Figure 7 Transfer Characteristics

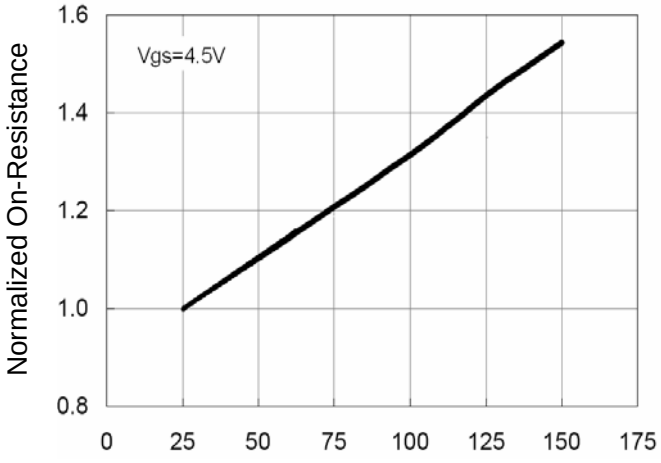


Figure 8 Drain-Source On-Resistance

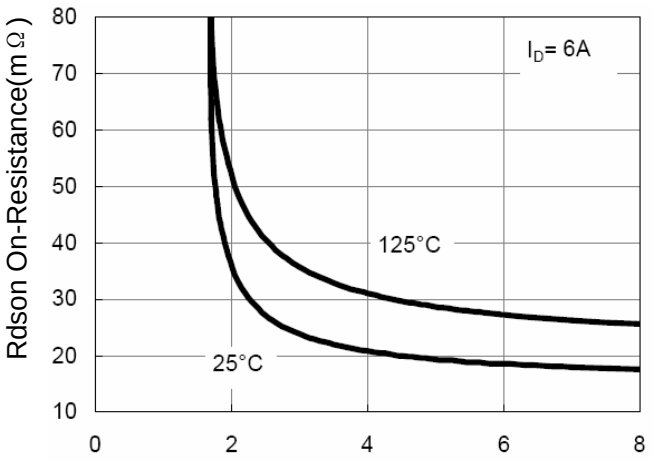


Figure 9 Rdson vs Vgs

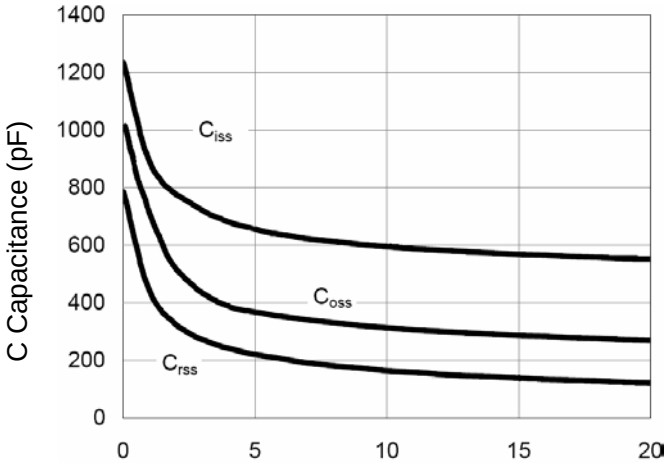


Figure 10 Capacitance vs Vds

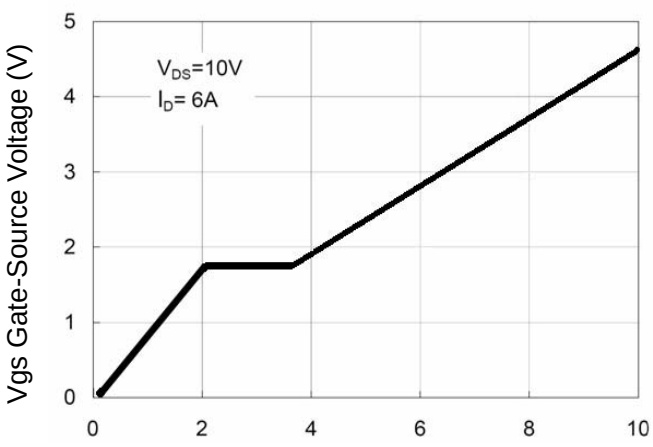


Figure 11 Gate Charge

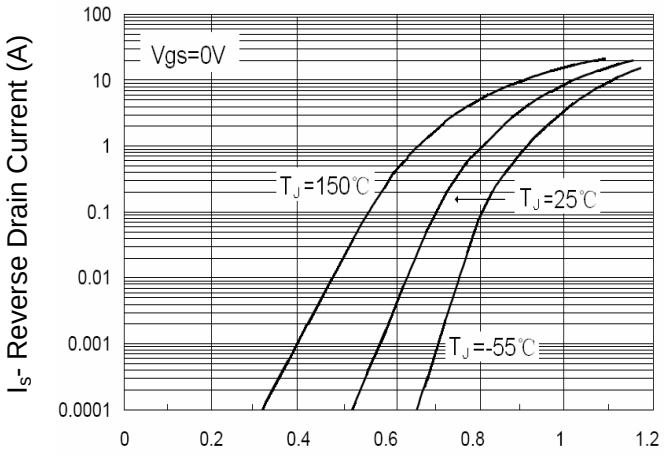


Figure 12 Source- Drain Diode Forward

Typical Characteristics

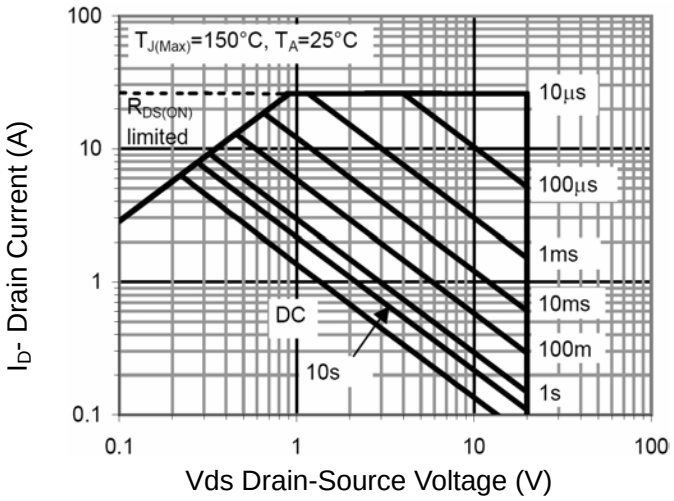


Figure 13 Safe Operation Area

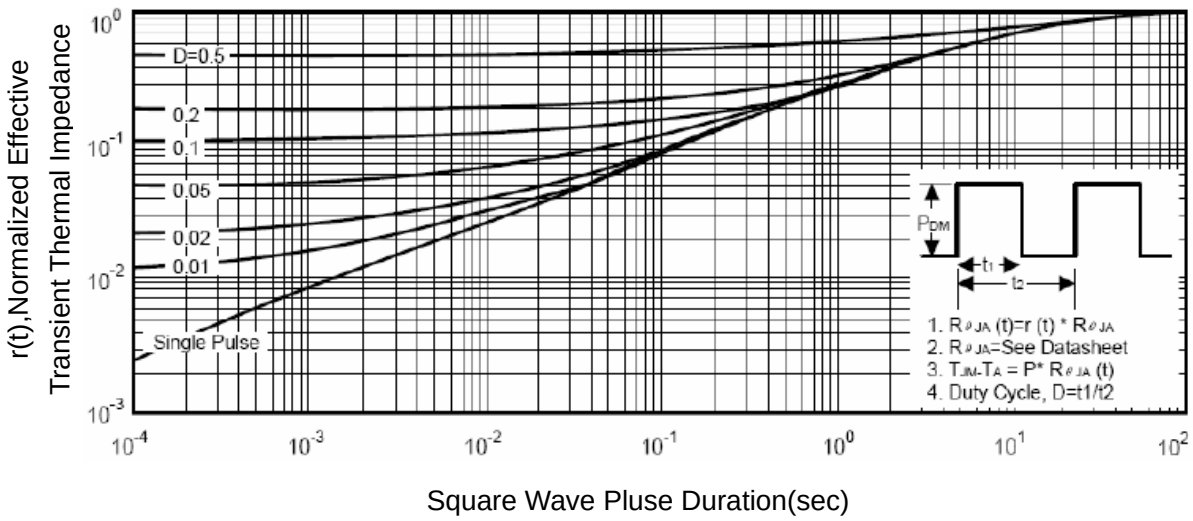
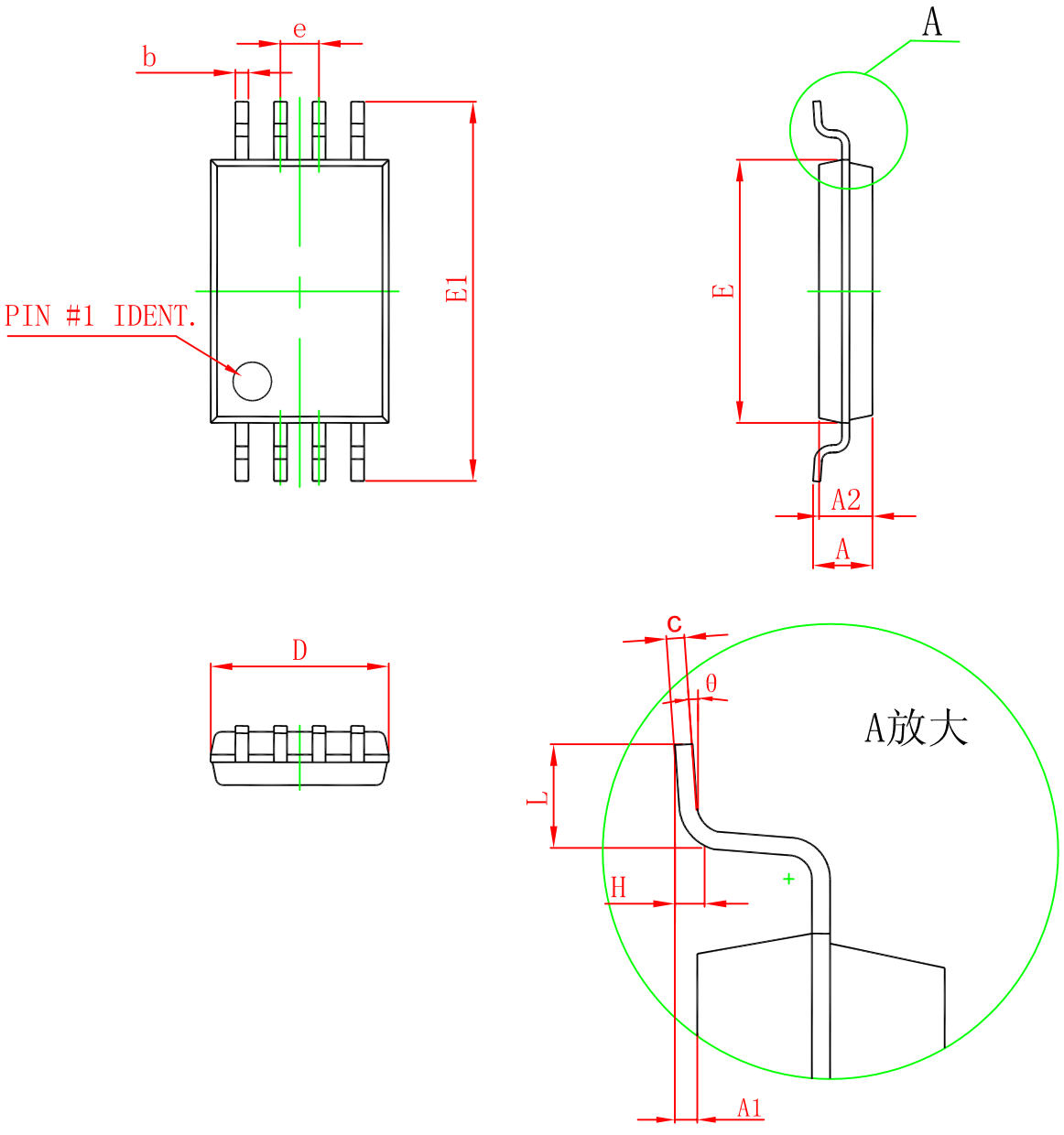


Figure 14 Normalized Maximum Transient Thermal Impedance

TSSOP8 Package Information



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°