

## P-Channel 40-V(D-S) MOSFET

V(BR)DSS	RDS(on)MAX	ID
- 40 V	45mΩ @ - 10V	- 4.4A
	65mΩ @ - 4.5V	

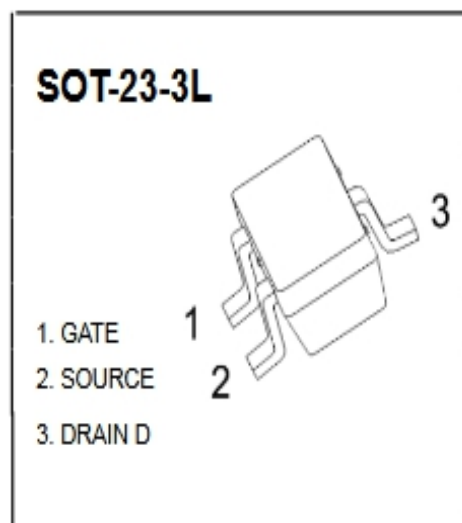
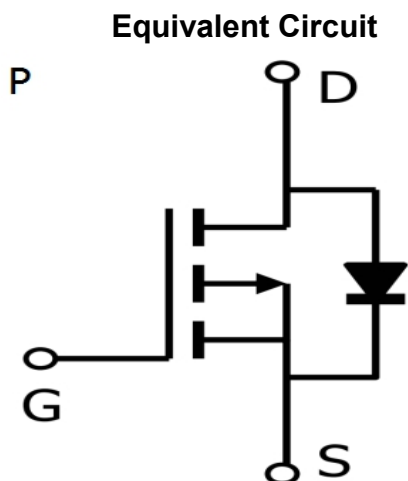
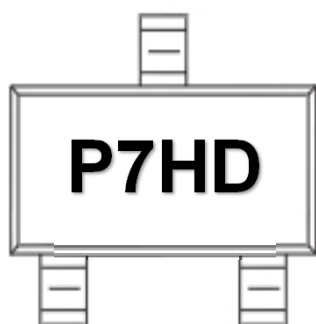
### FEATURE

- TrenchFET Power MOSFET
- Low RDS(ON)
- Surface Mount Package

### APPLICATION

- ※ Load Switch for Portable Devices
- ※ DC/DC Converter
- ※ Battery Switch

### MARKING



### Maximum ratings ( Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	-40	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current	ID	-4.4	A
Pulsed Diode Curren	IDM	-20	
Continuous Source-Drain Current(Diode Conduction)	IS	-2.1	
Power Dissipation	PD	2.5	W
Thermal Resistance from Junction to Ambient (t≤5s)	RθJA	166	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	°C

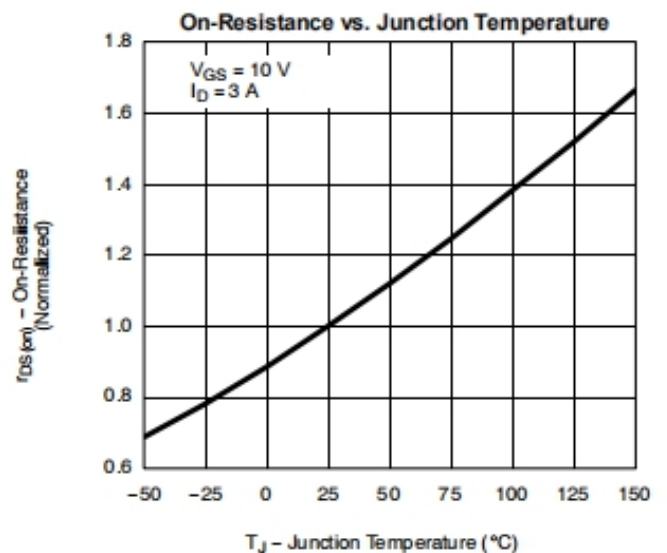
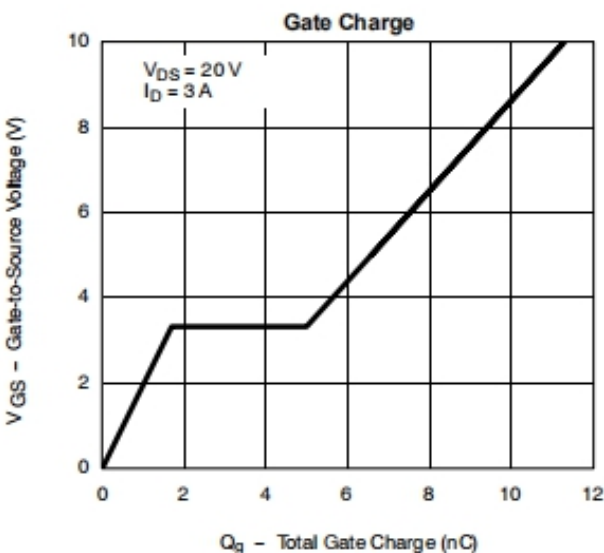
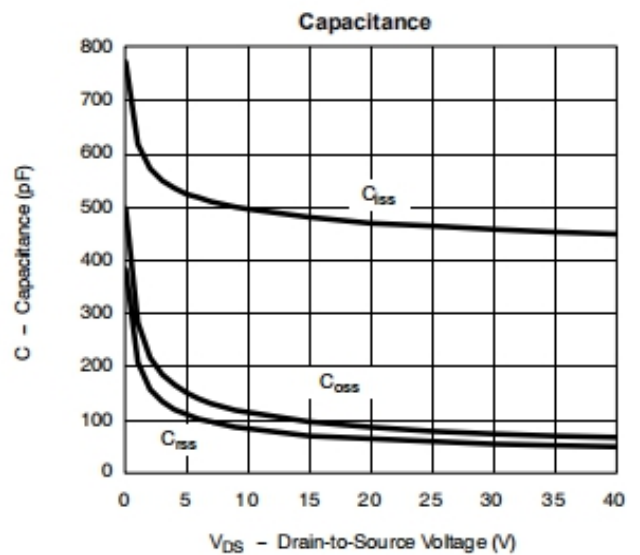
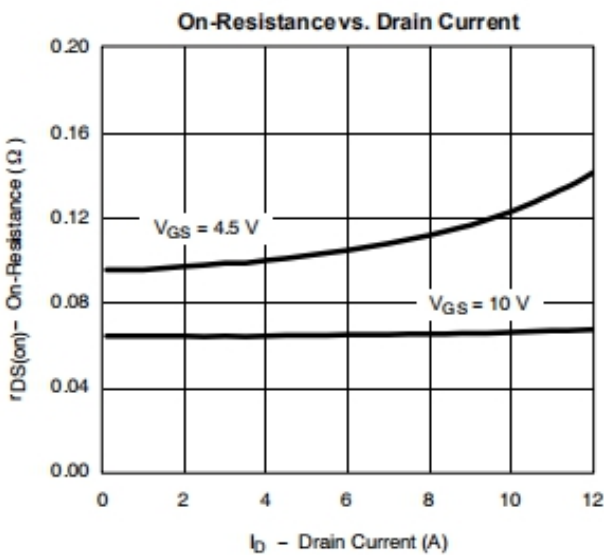
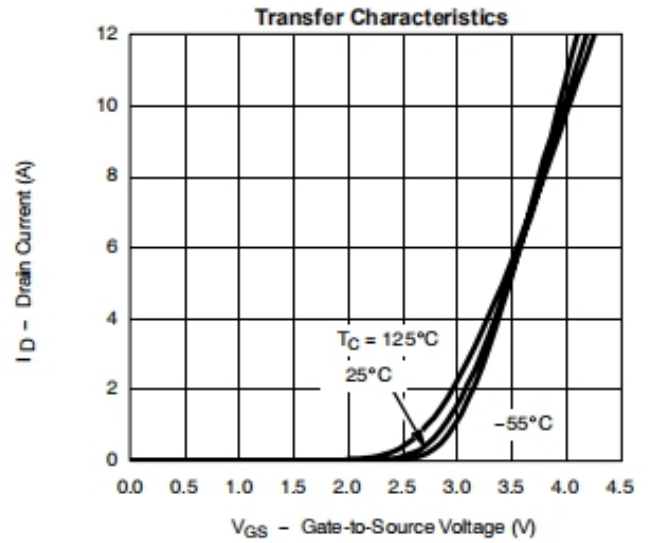
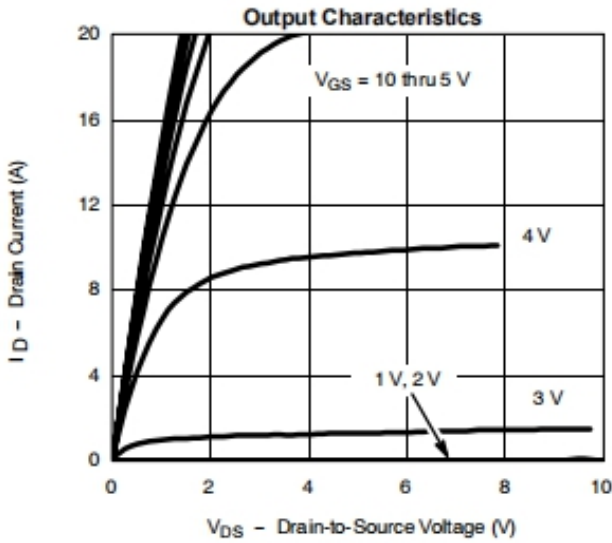
**MOSFET ELECTRICAL CHARACTERISTICS**
**Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-source breakdown voltage	<b>V(BR)DSS</b>	VGS = 0V, ID = -250μA	<b>-40</b>			<b>V</b>
Gate-source threshold voltage	<b>VGS(th)</b>	VDS = VGS, ID = -250μA	<b>-1</b>		<b>-3</b>	<b>V</b>
Gate-source leakage	<b>IGSS</b>	VDS = 0V, VGS = ±20V			<b>±100</b>	<b>nA</b>
Zero gate voltage drain current	<b>IDSS</b>	VDS = -40V, VGS = 0V			<b>-1</b>	<b>μA</b>
Drain-source on-state resistance <sup>a</sup>	<b>RDS(on)</b>	VGS = -10V, ID = -3A		<b>40</b>	<b>45</b>	<b>mΩ</b>
		VGS = -4.5V, ID = -2.5A		<b>56</b>	<b>65</b>	<b>mΩ</b>
Forward transconductance <sup>a</sup>	<b>gfs</b>	VDS = -15V, ID = -3.2A		<b>10</b>		<b>S</b>
Diode forward voltage	<b>VSD</b>	IS = -1.25A, VGS = 0V		<b>-0.8</b>	<b>-1.28</b>	<b>V</b>
<b>Dynamic</b>						
Input capacitance	<b>Ciss</b>	VDS = -20V, VGS = 0V, f = 1MHz		<b>595</b>		<b>pF</b>
Output capacitance	<b>Coss</b>			<b>85</b>		<b>pF</b>
Reverse transfer capacitance <sup>b</sup>	<b>Crss</b>			<b>65</b>		<b>pF</b>
Total gate charge	<b>Qg</b>	VDS = -20V, VGS = -10V, ID = -3.1A		<b>13.6</b>	<b>21</b>	<b>nC</b>
Gate-source charge	<b>Qgs</b>			<b>2.5</b>		<b>nC</b>
Gate-drain charge	<b>Qgd</b>			<b>3.3</b>		<b>nC</b>
Gate resistance	<b>Rg</b>	f = 1MHz		<b>4.5</b>		<b>Ω</b>
<b>Switching<sup>b</sup></b>						
Turn-on delay time	<b>td(on)</b>	VDS = -20V RL = 8Ω, ID = -2.5A, VGEN = -4.5V, Rg = 1Ω		<b>40</b>	<b>60</b>	<b>ns</b>
Rise time	<b>tr</b>			<b>27</b>	<b>41</b>	<b>ns</b>
Turn-off delay time	<b>td(off)</b>			<b>18</b>	<b>27</b>	<b>ns</b>
Fall time	<b>tf</b>			<b>10</b>	<b>20</b>	<b>ns</b>
<b>Drain-source body diode characteristics</b>						
Continuous Source-Drain Diode Current	<b>IS</b>	Tc = 25°C			<b>-1.28</b>	<b>A</b>
Pulsed Diode forward Current	<b>ISM</b>				<b>-20</b>	<b>A</b>

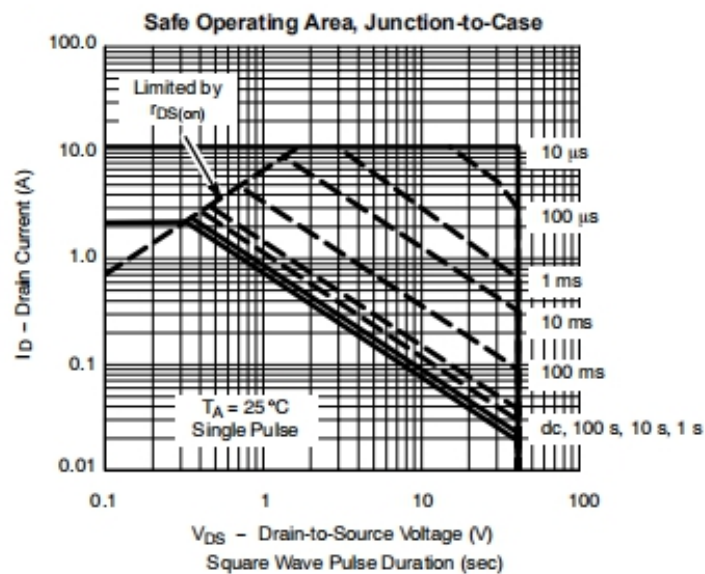
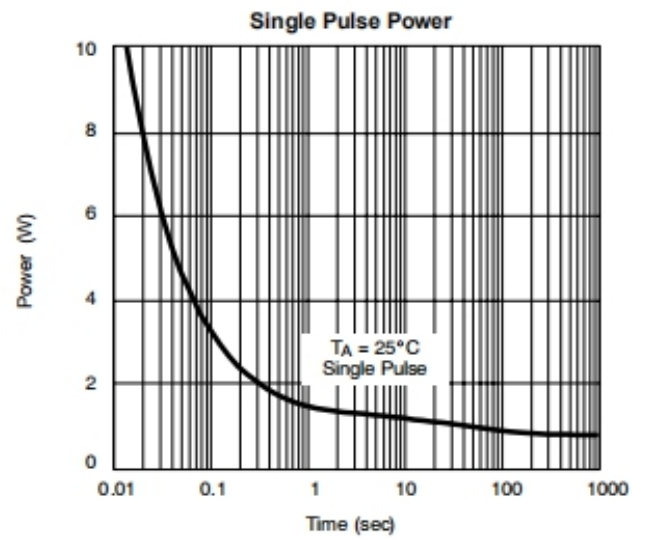
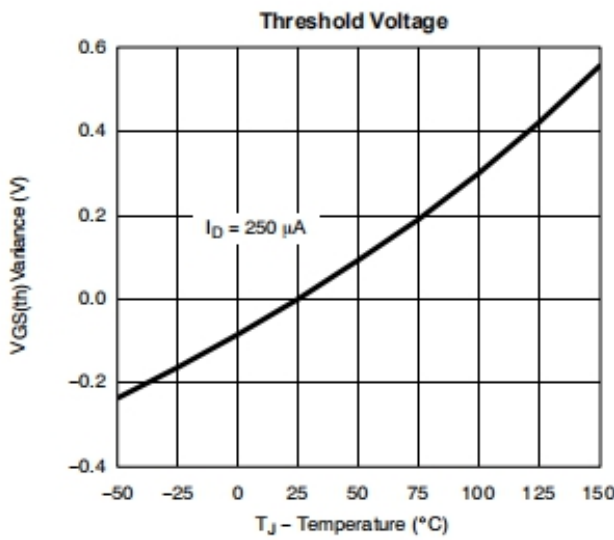
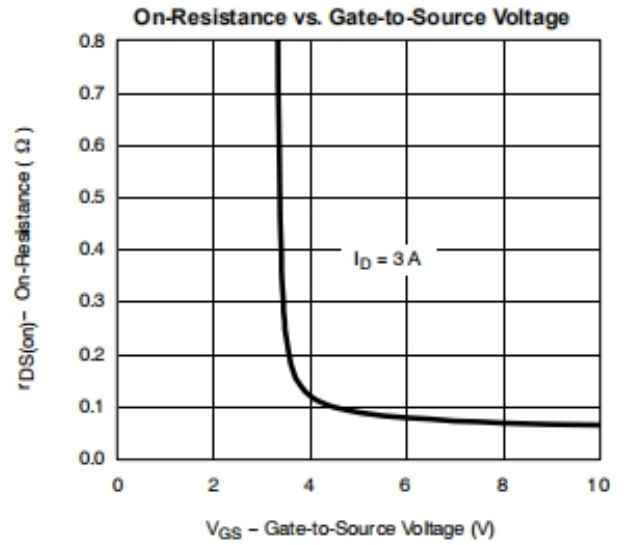
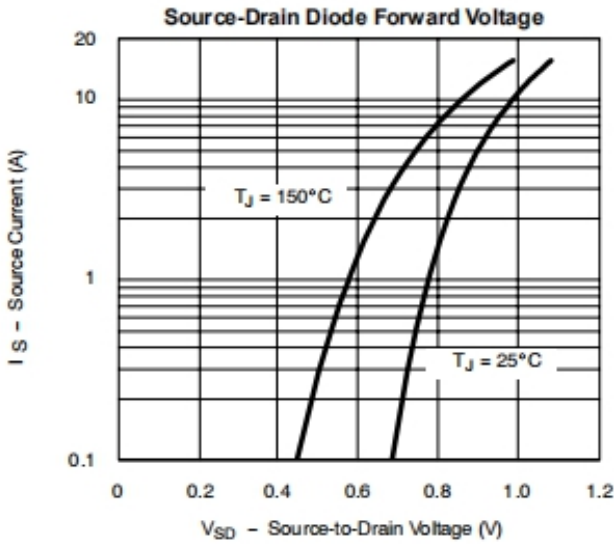
**Note :**

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

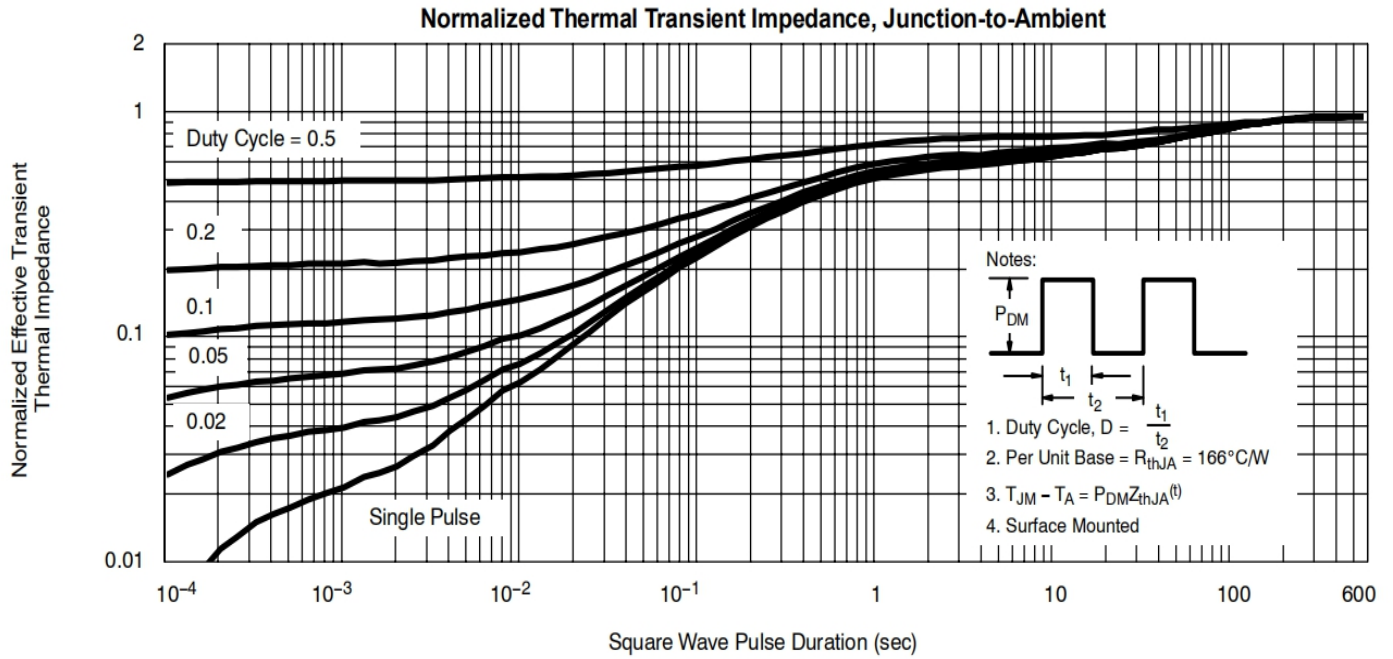
**TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS**



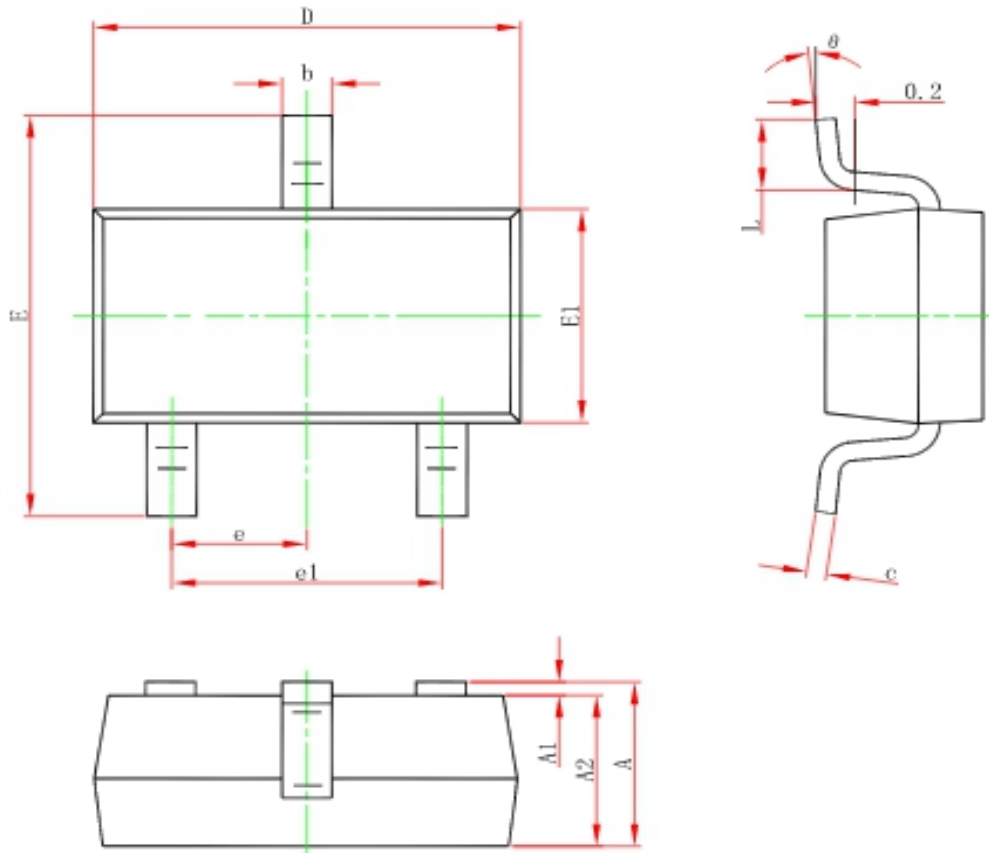
**TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS**



**TYPICAL ELEC TRICAL AND THERMAL CHARACTERISTICS**



**SOT-23-3L 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°