

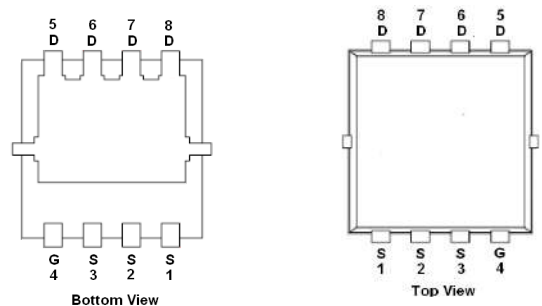
## ➤ General Description

This PAN76TS06DA N-Channl enhancement mode power field effect transistor is the high density trench technology and this advanced technology can provide excellent Rds(On) performance and efficiency for power switching and load switching application., this device also comply with the RoHS and Green Product requirement with full function reliability approved.

## ➤ Feature

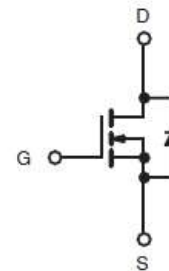
- Green Device Available
- Super Low Gate Charge
- 100% EAS Guaranteed
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology
- DFN3.3x3.3-8L package design

## ➤ DFN3.3x3.3-8L



## ➤ Application

- DC/DC Converters
- POL



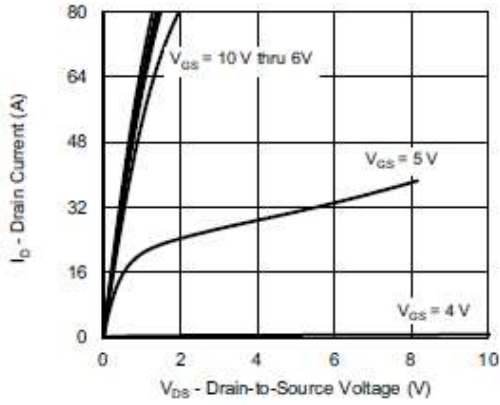
## ➤ Absolute Maximum Ratings

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V <sub>DSS</sub>	100	V
Gate –Source Voltage	V <sub>GSS</sub>	±20	V
Continuous Drain Current(T <sub>J</sub> =150°C)	I <sub>D</sub>	T <sub>C</sub> =25°C	35
		T <sub>C</sub> =70°C	28
Pulsed Drain Current ( t=100us )	I <sub>DM</sub>	T <sub>A</sub> =25°C	9.5
		T <sub>A</sub> =70°C	7.5
Continuous Source Current(Diode Conduction)	I <sub>S</sub>	46	A
Single pulse avalanche current	I <sub>AS</sub>	20	
Single pulse avalanche energy	E <sub>AS</sub>	20	mJ
Power Dissipation	P <sub>D</sub>	T <sub>C</sub> =25°C	52
		T <sub>C</sub> =70°C	33
Operating Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-55/150	°C
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	33	°C/W
Maximum junction-to-case (drain)	R <sub>θJC</sub>	2.4	

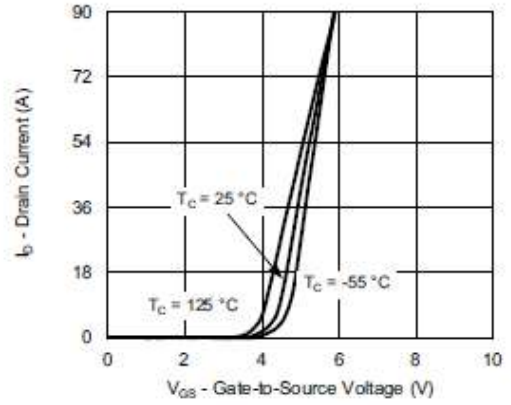
### ➤ Electrical Characteristics ( $T_A=25^\circ C$ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		2.5	
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=80V, V_{GS}=0V$			1	uA
		$V_{DS}=80V, V_{GS}=0V$ $T_J=85^\circ C$			10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 10V, V_{GS}=10V$	40			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=10A$		14	18	m $\Omega$
		$V_{GS}=4.5V, I_D=8A$		19	23	
Forward Transconductance	$g_{FS}$	$V_{DS}=15V, I_D=10A$		46		S
Diode Forward Voltage	$V_{SD}$	$I_S=5.0A, V_{GS}=0V$		0.8	1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=50V, V_{GS}=7.5V$ $I_D \equiv 10A$		15	25	nC
Gate-Source Charge	$Q_{gs}$			6.5		
Gate-Drain Charge	$Q_{gd}$			3.5		
Gate resistance	$R_g$		0.2	0.8	1.4	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=50V, V_{GS}=0V$ $f=1MHz$		1450		pF
Output Capacitance	$C_{oss}$			130		
Reverse Transfer Capacitance	$C_{rss}$			12		
Turn-On Time	$t_{d(on)}$	$V_{DD}=50V, R_L=5\Omega$ $I_D \equiv 10A, V_{GEN}=10V$ $R_G=1.0\Omega$		10	25	ns
	$t_r$			5	10	
Turn-Off Time	$t_{d(off)}$			20	40	
	$t_f$			5	10	

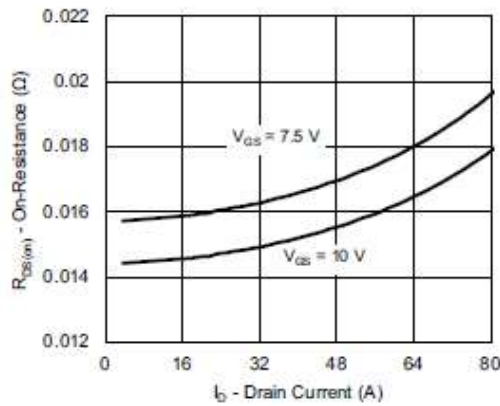
## ➤ Typical Characteristics



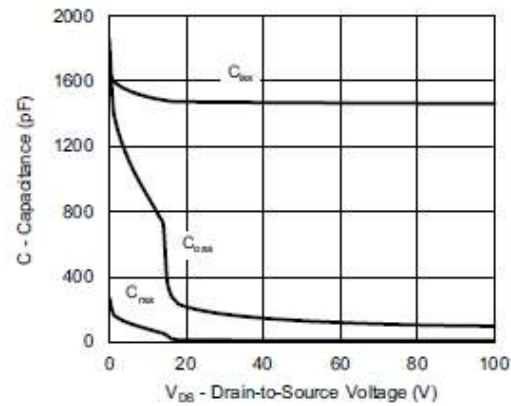
Output Characteristics



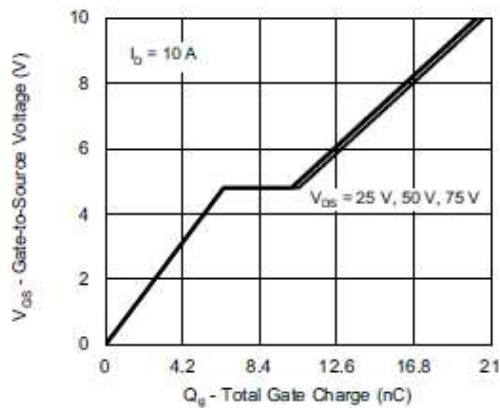
Transfer Characteristics



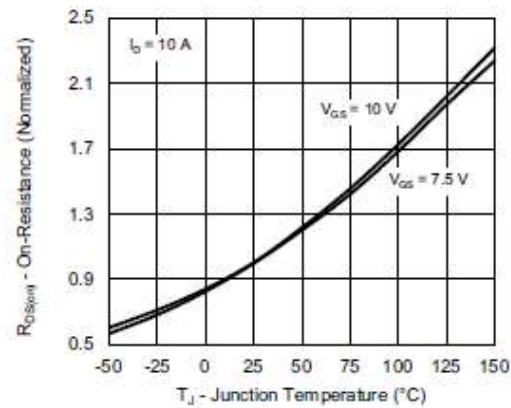
On-Resistance vs. Drain Current and Gate Voltage



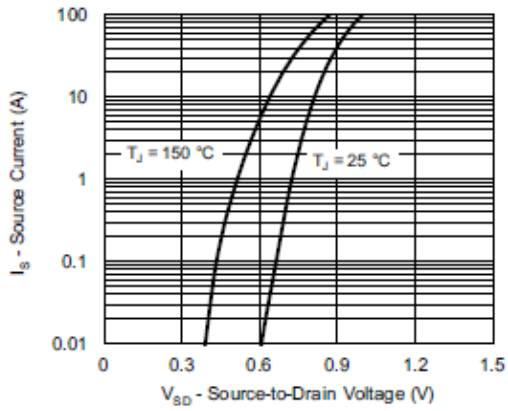
Capacitance



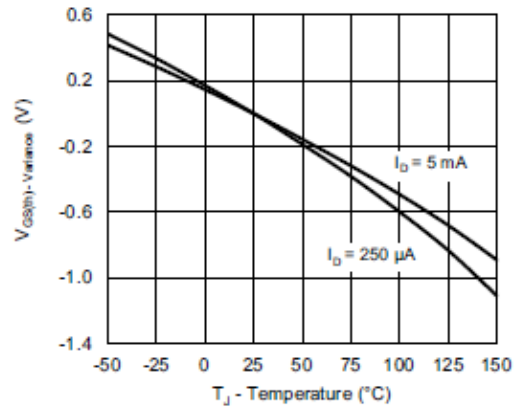
Gate Charge



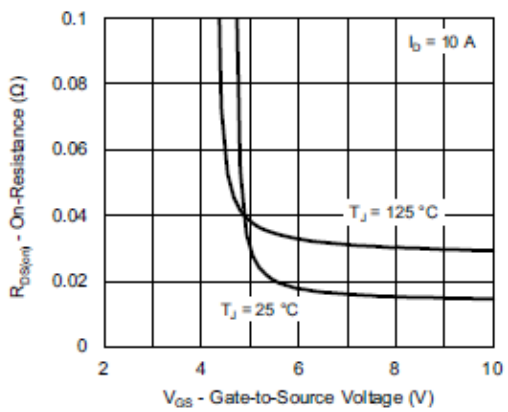
On-Resistance vs. Junction Temperature



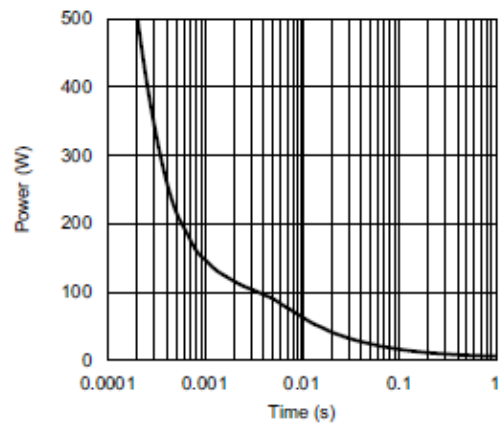
Source-Drain Diode Forward Voltage



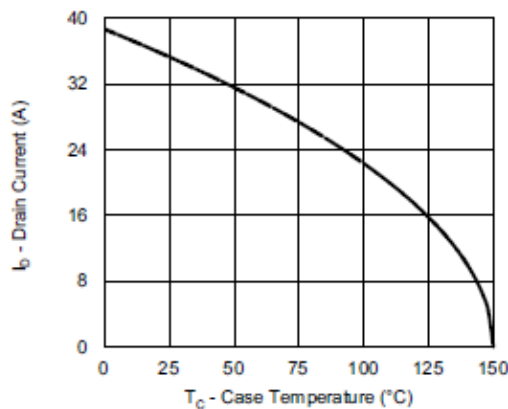
Threshold Voltage



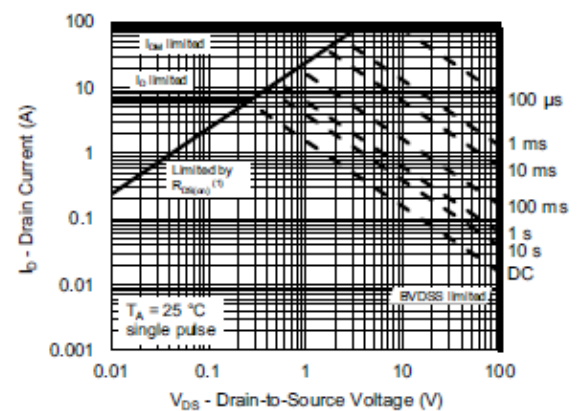
On-Resistance vs. Gate-to-Source Voltage



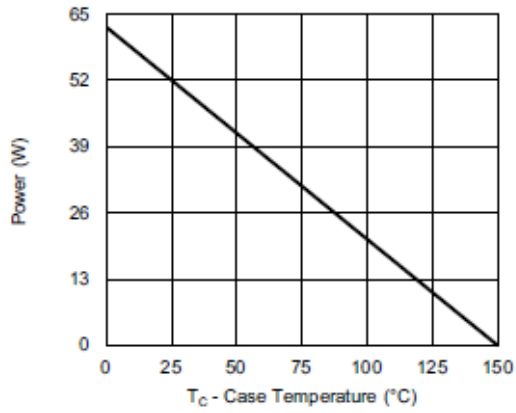
Single Pulse Power, Junction-to-Ambient



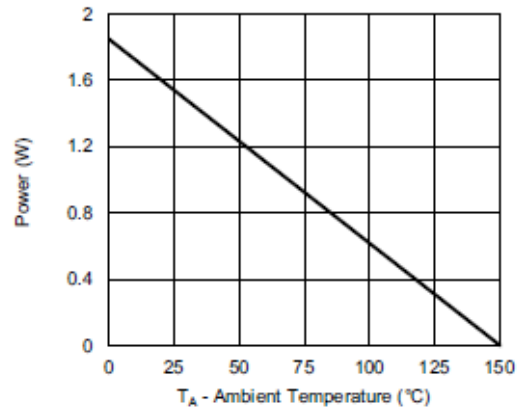
Current Derating <sup>a</sup>



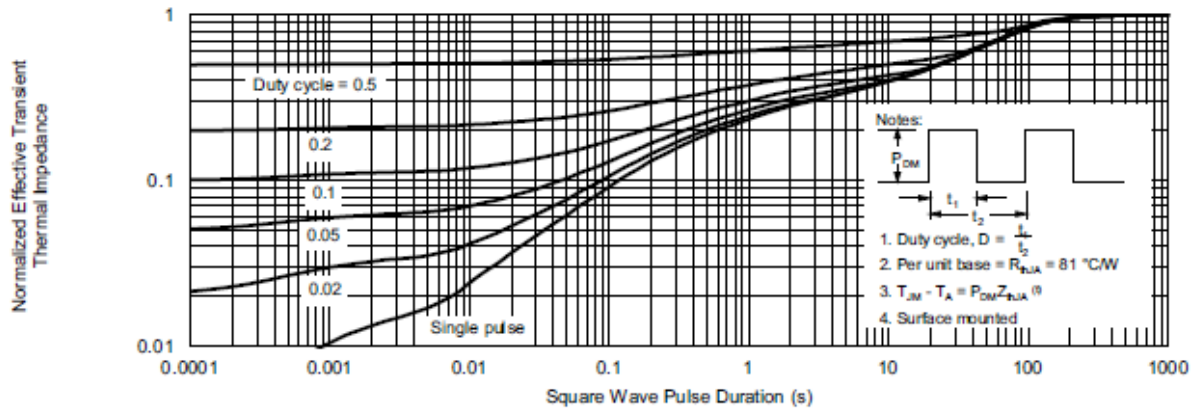
Safe Operating Area, Junction-to-Ambient



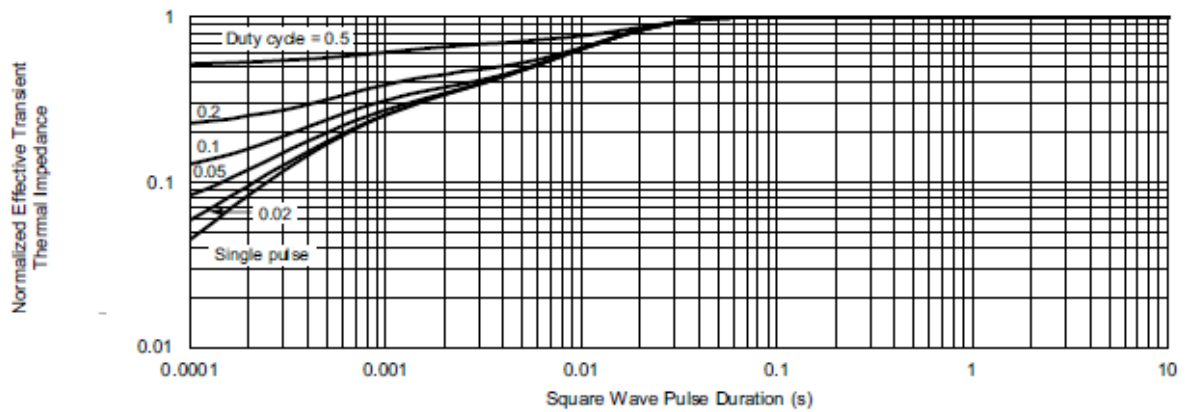
Power, Junction-to-Case



Power, Junction-to-Ambient

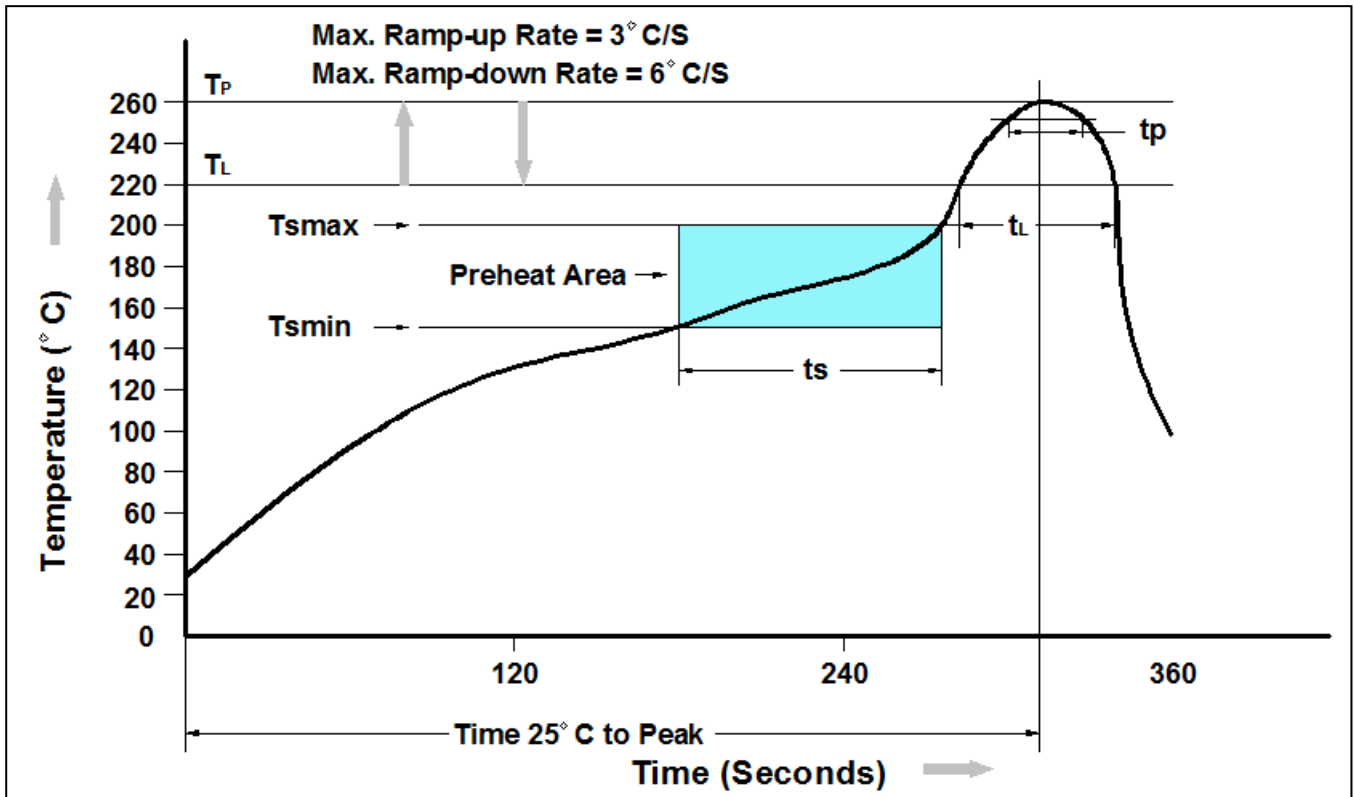


Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case

## ➤ Recommand IR Reflow Soldering Thermal Profile

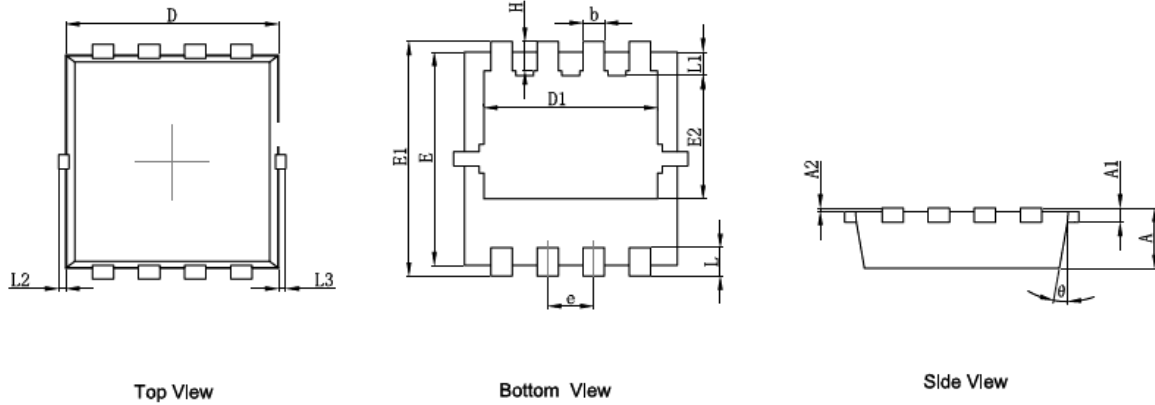


Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T <sub>smin</sub> )	150°C
Temperature Max. (T <sub>smax</sub> )	200°C
Time (t <sub>s</sub> ) from (T <sub>smin</sub> to T <sub>smax</sub> )	60-120 seconds
Average Ramp-up Rate (t <sub>L</sub> to t <sub>P</sub> )	3°C/second max.
Liquidous Temperature (T <sub>L</sub> )	217°C
Time (t <sub>L</sub> ) Maintained Above (T <sub>L</sub> )	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (t <sub>P</sub> ) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (T <sub>P</sub> to T <sub>L</sub> )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

## ➤ Ordering Information

Part Number	Description	Quantity
PAN76TS06DA	DFN3.3x3.3-8L Reel	5000 pcs

### ➤ Package Information (DFN3.3X3.3-8L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
$\theta$	9°	13°	9°	13°

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