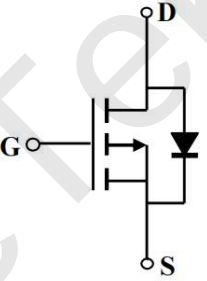
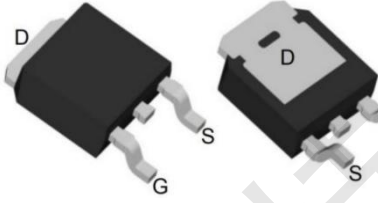




FMB01P30K P-Channel Trench Power MOSFET

FMB01P30K Description

Features • -95V,-30A • $R_{DS(ON)}=64m\Omega$ (Typ.) @ $V_{GS}=10V$ • $R_{DS(ON)}=68m\Omega$ (Typ.) @ $V_{GS}=4.5V$ • Advanced Trench Technology • Provide Excellent $R_{DS(ON)}$ and Low Gate Charge • 100% UIS Tested	Application • LCD TV • Notebook • Elevator • Inductive heating • Power tools
Package TO-252 DPAK Top View Bottom View 	

FMB01P30K Package Marking and Ordering Information

Product ID	PACK	Qty (pcs)
FMB01P30K	TO-252	2500

FMB01P30K Absolute Maximum Ratings ($T_C=25^{\circ}C$ unless otherwise specified)

Symbol	Parameter		Value	Units
V_{DSS}	Drain-Source Voltage		-95	V
V_{GSS}	Gate-Source Voltage		± 20	V
I_D	Continuous Drain Current	$T_C = 25^{\circ}C$	-30	A
		$T_C = 100^{\circ}C$	-11	A
I_{DM}	Pulsed Drain Current ^{note1}		-53	A
E_{AS}	Single Pulsed Avalanche Energy ^{note2}		225	mJ
P_D	Power Dissipation	$T_C = 25^{\circ}C$	27	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		4.5	$^{\circ}C/W$
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	$^{\circ}C$



FMB01P30K Electrical Characteristics (T_C=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-95	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-80V, V _{GS} = 0V,	-	-	-1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =-250μA	-1	-1.6	-2	V
R _{DS(on)}	Static Drain-Source on-Resistance	V _{GS} =-10V, I _D =-10A	-	64	83.2	mΩ
		V _{GS} =-4.5V, I _D =-5A	-	68	88.4	mΩ
g _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-15A	-	34	-	S
Dynamic Characteristics						
C _{iSS}	Input Capacitance	V _{DS} =-50V, V _{GS} =-10V, f = 1.0MHz	-	2828	-	pF
C _{oSS}	Output Capacitance		-	102	-	pF
C _{rSS}	Reverse Transfer Capacitance		-	88	-	pF
R _g	Gate resistance		-	13.2	-	Ω
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =-50V, I _D =-5A, V _{GS} =-10V	-	96	-	nC
Q _{gs}	Gate-Source Charge		-	8.5	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	40.5	-	nC
V _{plateau}	Gate plateau voltage		-	2.4	-	V
t _{d(on)}	Turn-on Delay Time	V _{DS} =-50V, V _{GS} =-10V R _L =1.5Ω, R _{GEN} =3Ω,	-	17	-	ns
t _r	Turn-on Rise Time		-	80	-	ns
t _{d(off)}	Turn-off Delay Time		-	45	-	ns
t _f	Turn-off Fall Time		-	65	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-30	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-53	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S =-10A	-	-	-1.2	V

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J=25°C, V_{DD}=-20V, V_G=-10V, R_G=25Ω, L=0.5mH
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%



FMB01P30K Typical Performance Characteristics

Figure1: On-Region Characteristics

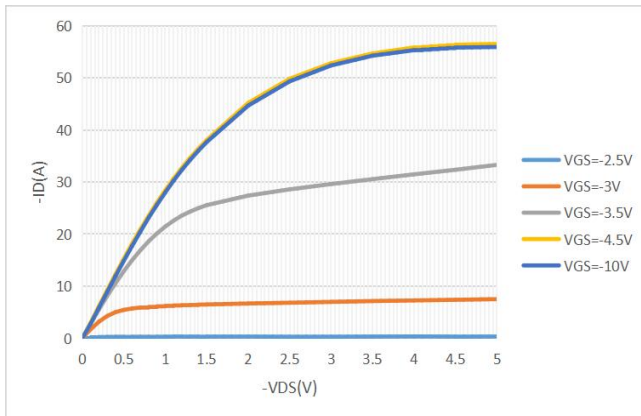


Figure 2: Transfer Characteristics

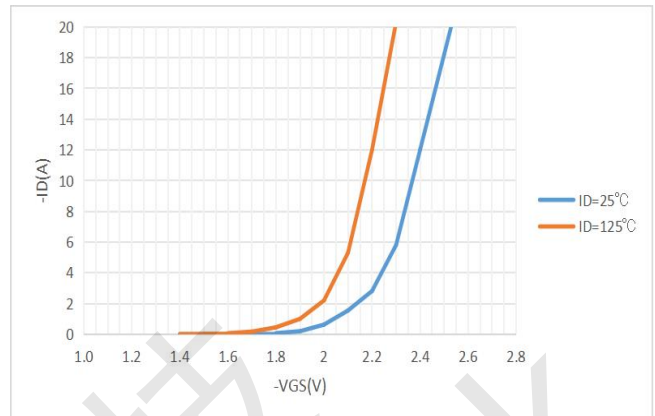


Figure 3: On-resistance vs. Drain Current and Gate Voltage

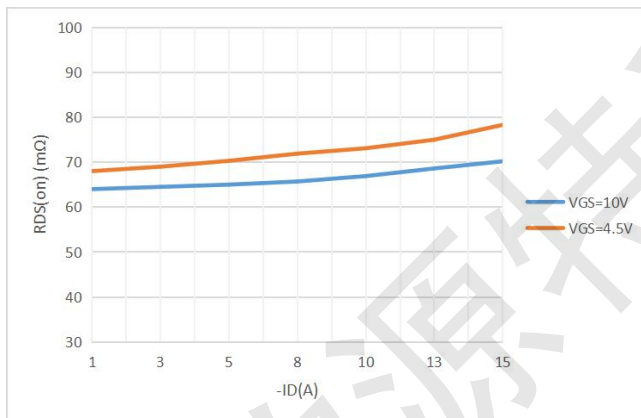


Figure 4: On-Resistance vs. Gate-Source Voltage

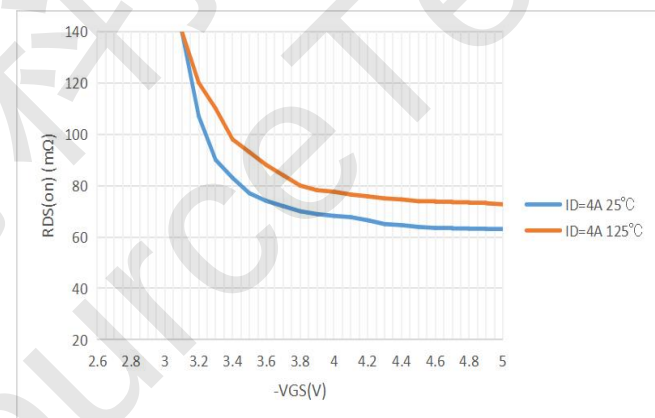


Figure 5: On-Resistance vs. Junction Temperature

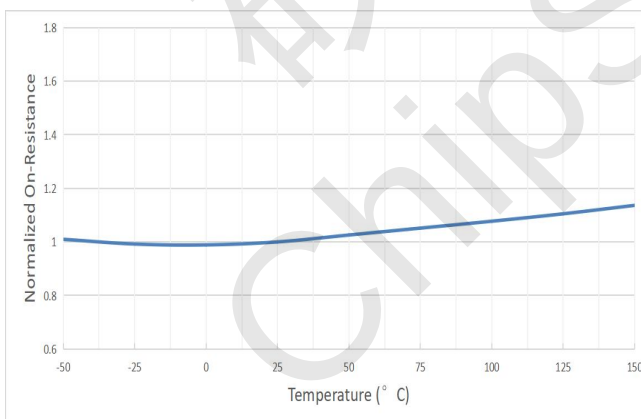
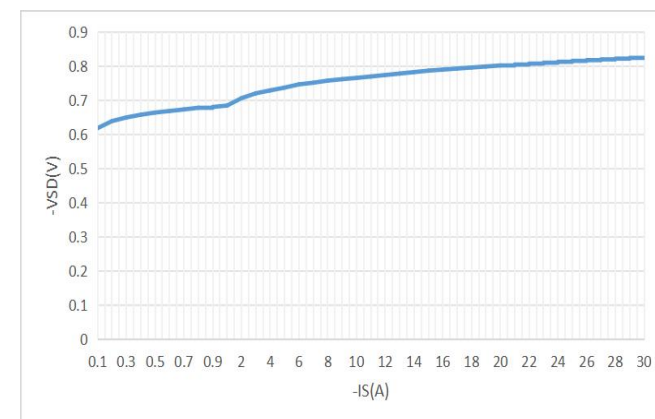


Figure 6: Body-Diode Characteristics





FMB01P30K Typical Performance Characteristics

Figure7: Capacitance Characteristics C(pF)

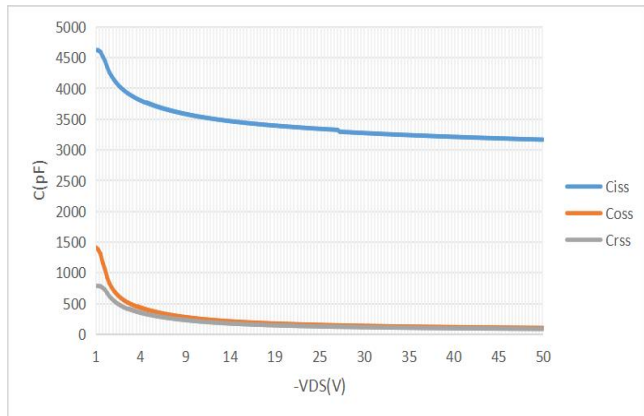


Figure 8: Gate-Charge Characteristics



Figure9: Maximum Forward Biased Safe Operating Area

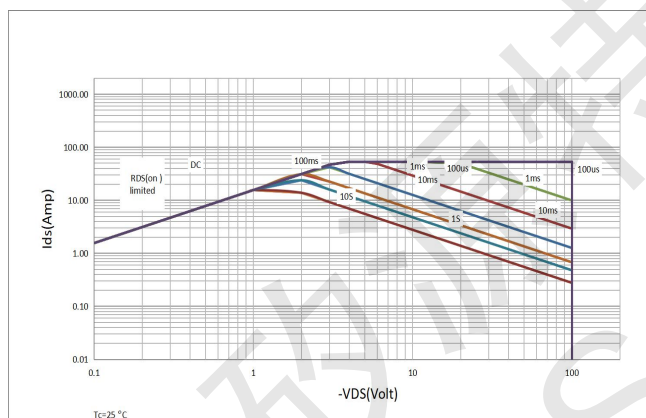
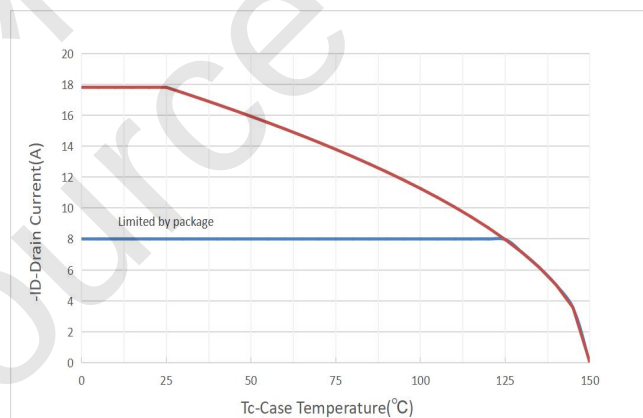


Figure10: Current De-rating





FMB01P30K Test Circuit

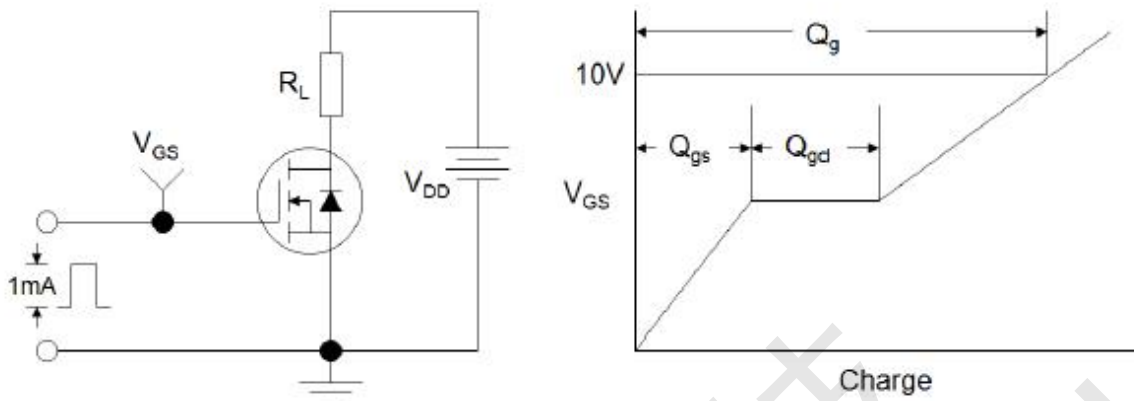


Figure1:Gate Charge Test Circuit & Waveform

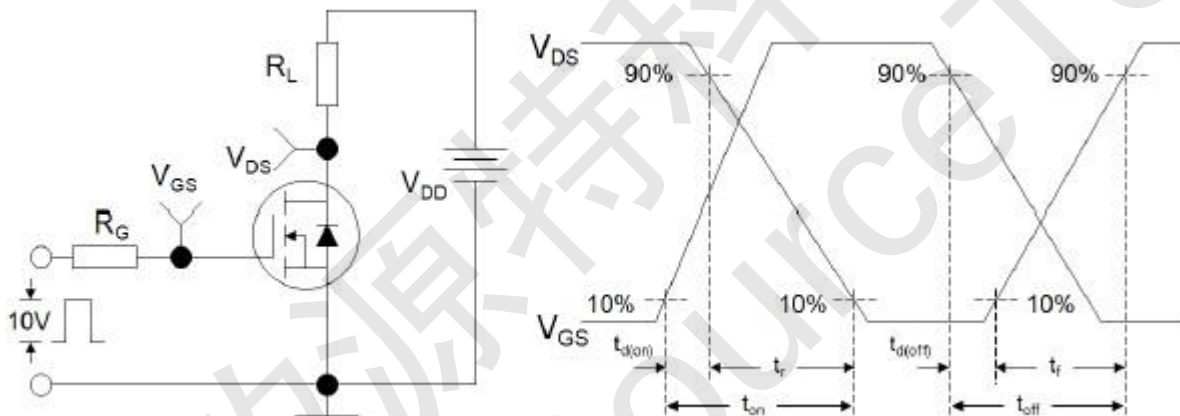


Figure 2: Resistive Switching Test Circuit & Waveforms

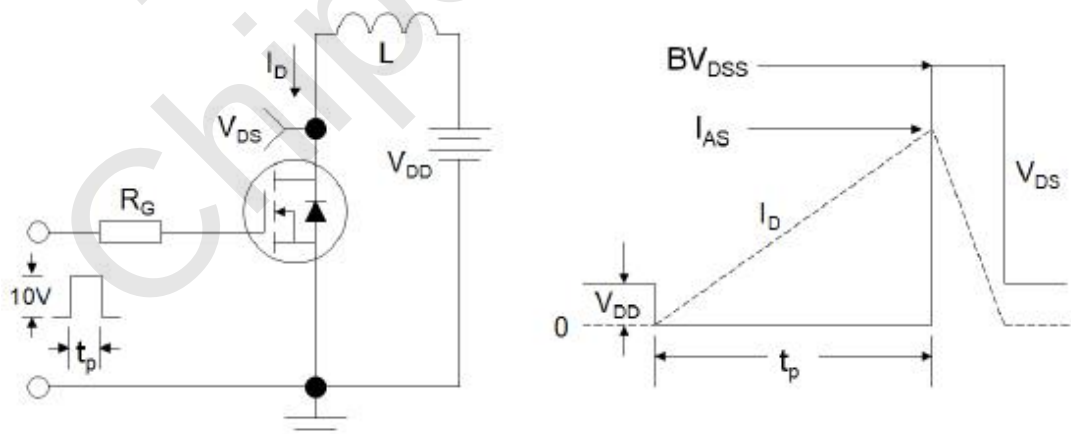


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

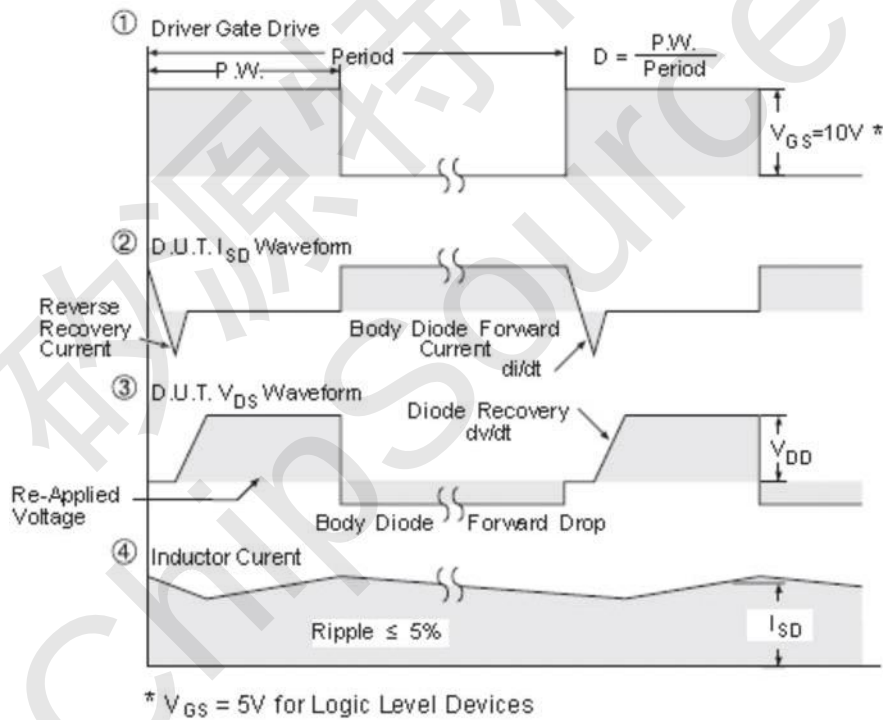
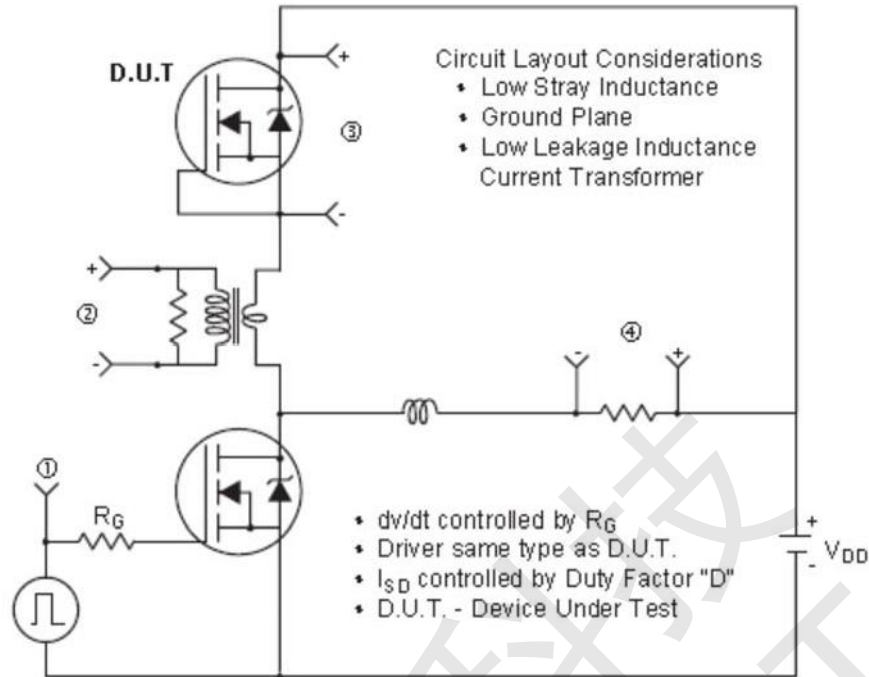
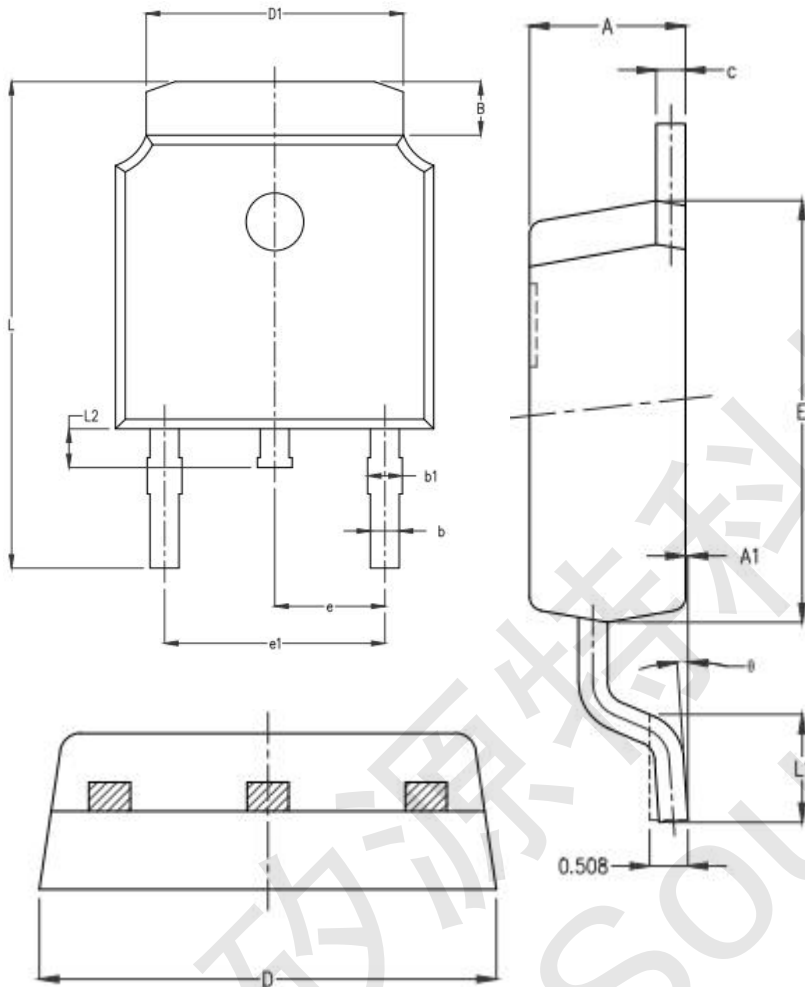


Figure 4: Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)



FMB01P30K TO-252 Package Information



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	2.15	2.25	2.35
A1	0.00	0.06	0.12
B	0.96	1.11	1.26
b	0.59	0.69	0.79
b1	0.69	0.81	0.93
c	0.34	0.42	0.50
D	6.45	6.60	6.75
D1	5.23	5.33	5.43
E	5.95	6.10	6.25
e	2.286TYP.		
e1	4.47	4.57	4.67
L	9.90	10.10	10.30
L1	1.40	1.55	1.70
L2	0.60	0.80	1.00
θ	0°	4°	8°