

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	8.5mΩ@10V	60A
	12mΩ@4.5V	

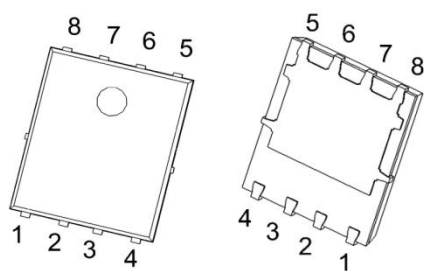
Feature

- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity
- Fast switching and soft recovery

Applications

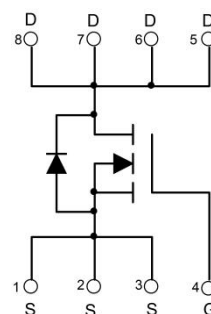
- Consumer electronic power supply
- Motor control Synchronous rectification
- Isolated DC/DC convertor
- Invertors

Package

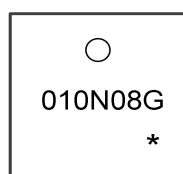


PDFN5X6-8L

Circuit diagram



Marking



010N08G : Product code
* : Month code.



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	V_{DS}	100	V
Gate source voltage	V_{GS}	± 20	V
Continuous drain current ¹⁾ , TC=25 °C	I_D	60	A
Pulsed drain current ²⁾ , TC=25 °C	I_{DM}	180	A
Power dissipation ³⁾ , TC=25 °C	P_D	107	W
Single pulsed avalanche energy ⁴⁾	E_{AS}	149	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	1.17	°C/W
Thermal resistance, junction-ambient	$R_{\theta JA}$	62	°C/W
Operation and storage temperature	T_{stg}, T_J	-55 to 150	°C

Electrical characteristics (Ta=25°C, unless otherwise noted)

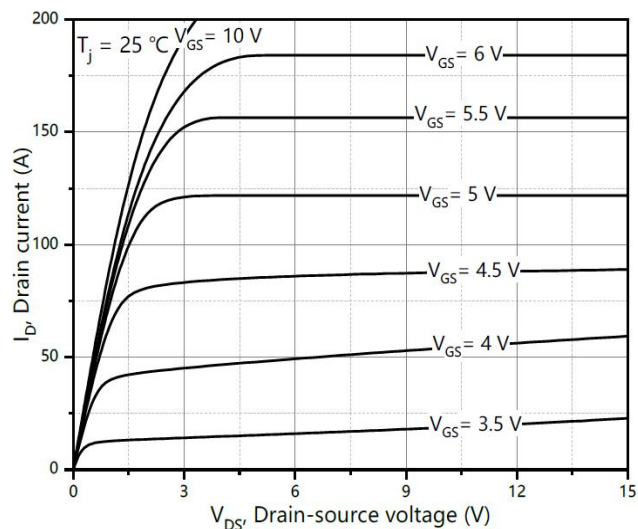
Parameter	Symbol	Test condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV _{DSS}	VGS=0 V, ID=250 μA	100			V
Drain-source leakage current	IDSS	VDS=100 V, VGS=0 V			1	μ A
Gate-source leakage current	IGSS	VGS=±20 V			± 100	nA
Gate threshold voltage	VGS(th)	VDS=VGS, ID=250 μA	1	1.9	2.5	V
Drain-source on-state resistance	RDS(ON)	VGS=10 V, ID=30 A		8.5	11	m Ω
Drain-source on-state resistance	RDS(ON)	VGS=4.5 V, ID=12 A		12	16	m Ω
Dynamic Characteristics						
Input capacitance	Ciss	VGS=0 V, VDS=50 V, f=1 MHz		1998		pF
Output capacitance	Coss			322		pF
Reverse transfer capacitance	Crss			7.1		pF
Switching Characteristics						
Turn-on delay time	td(on)	VGS=10 V, VDS=50 V, RG=2.2 Ω, ID=25 A		22.1		ns
Rise time	tr			5.2		ns
Turn-off delay time	td(off)			44		ns
Fall time	tf			8.4		ns
Total gate charge	Qg	ID=25 A, VDS=50 V, VGS=10 V		28.9		nC
Gate-source charge	Qgs			6		nC
Gate-drain charge	Qgd			6.8		nC
Drain-Source Diode Characteristics						
Diode forward voltage	VSD	IS=30 A, VGS=0 V			1.3	V
Reverse recovery time	trr	IS=12 A, di/dt=100 A/μs		102.9		ns
Reverse recovery charge	Qrr			379		nC
Peak reverse recovery current	Irrm			6.4		A

Notes:

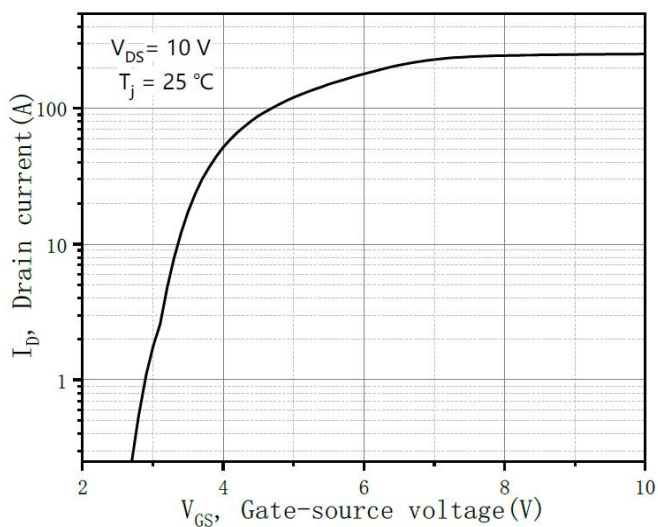
- 1) Calculated continuous current based on maximum allowable junction temperature.
- 2) Repetitive rating; pulse width limited by max. junction temperature.
- 3) P_d is based on max. junction temperature, using junction-case thermal resistance.
- 4) $V_{DD}=50\text{ V}, R_G=25\text{ }\Omega, L=0.3\text{ mH}$, starting $T_J=25\text{ }^\circ\text{C}$.



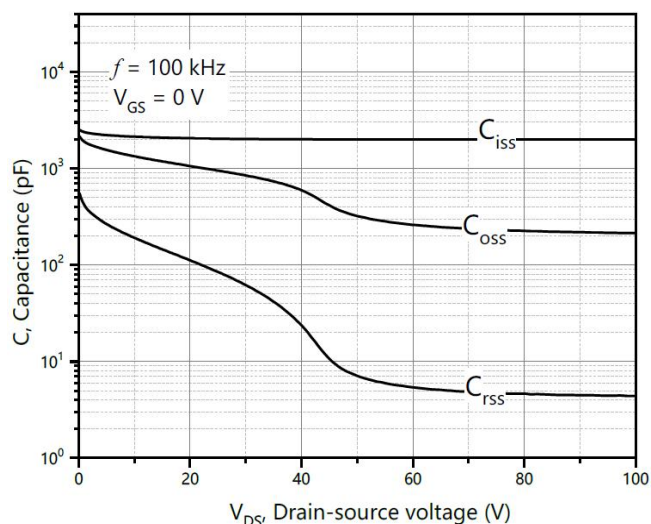
Typical Characteristics



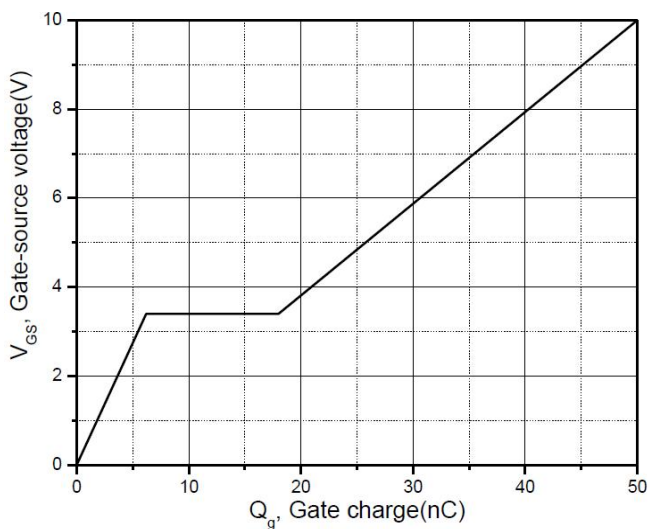
Typ. output characteristics



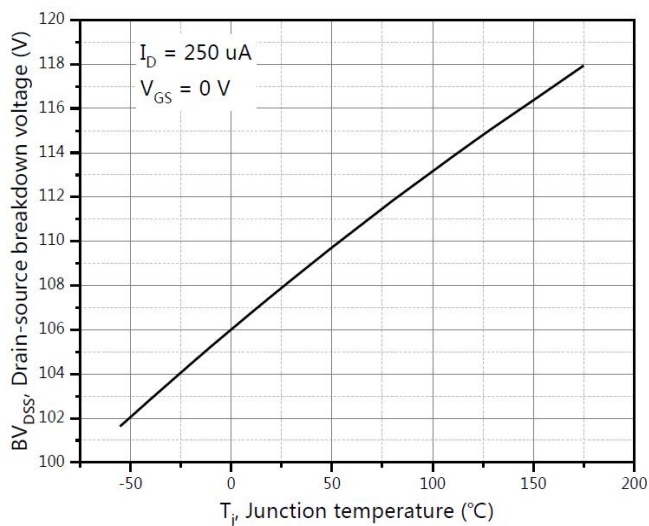
Typ. transfer characteristics



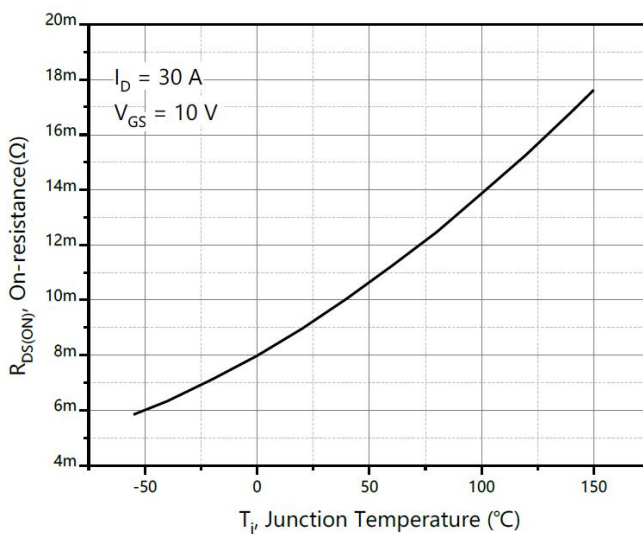
Typ. capacitances



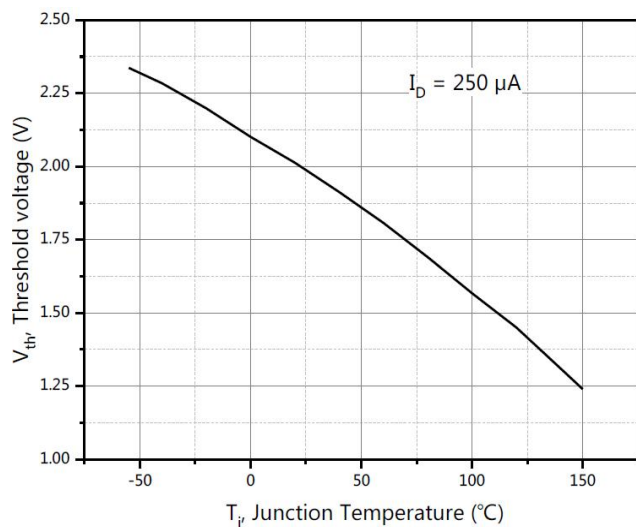
Typ. gate charge



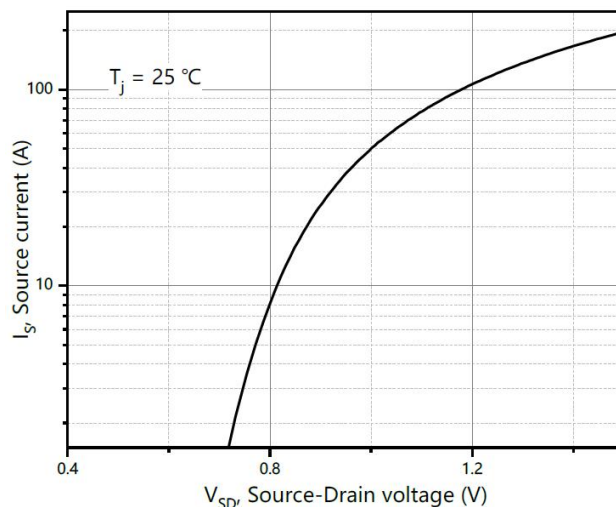
Drain-source breakdown voltage



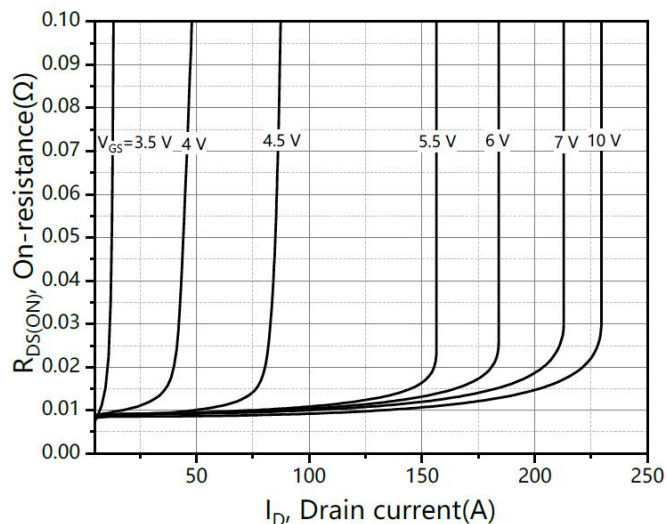
Drain-source on-state resistance



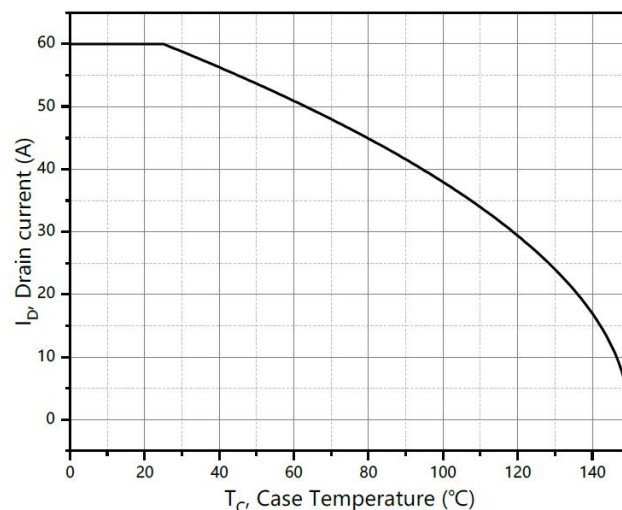
Threshold voltage



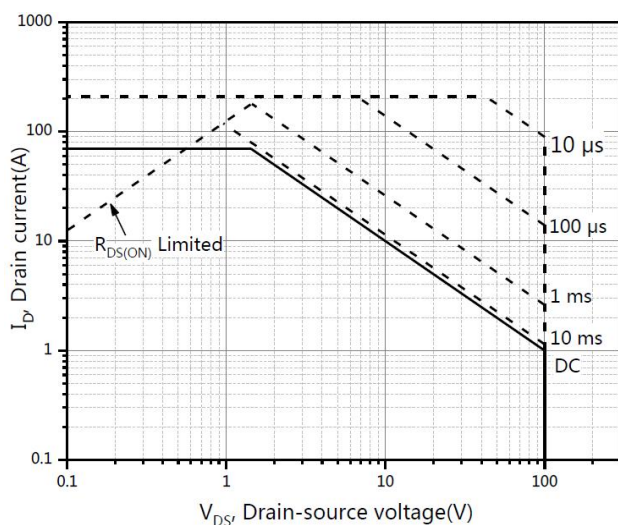
Forward characteristic of body diode



Drain-source on-state resistance



Drain current



Safe operation area $T_C = 25 \text{ °C}$

Test circuits and waveforms

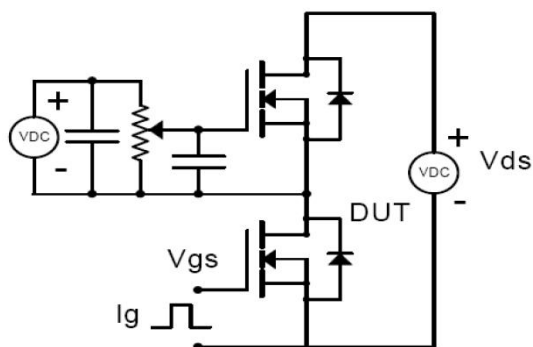


Figure 1, Gate charge test circuit & waveform

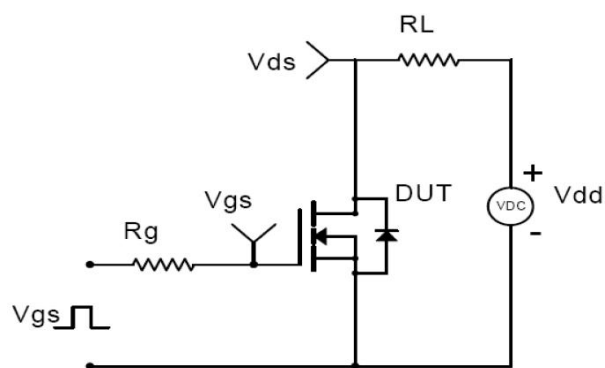
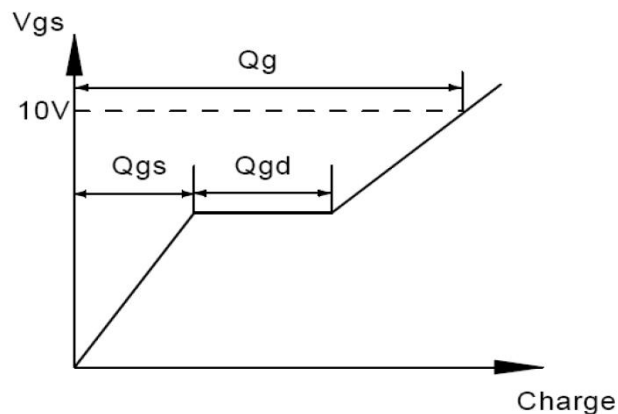


Figure 2, Switching time test circuit & waveforms

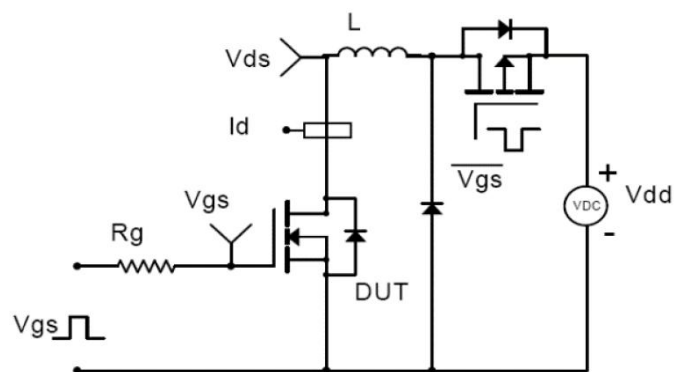
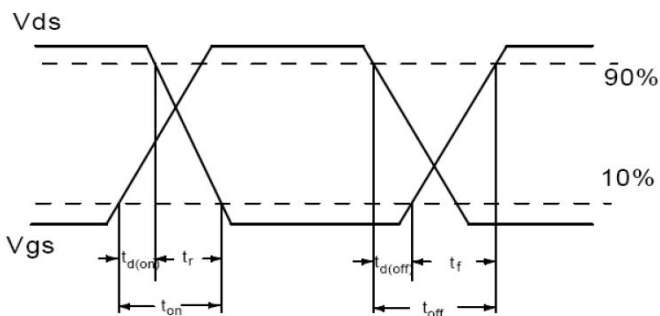


Figure 3, Unclamped inductive switching (UIS) test circuit & waveforms

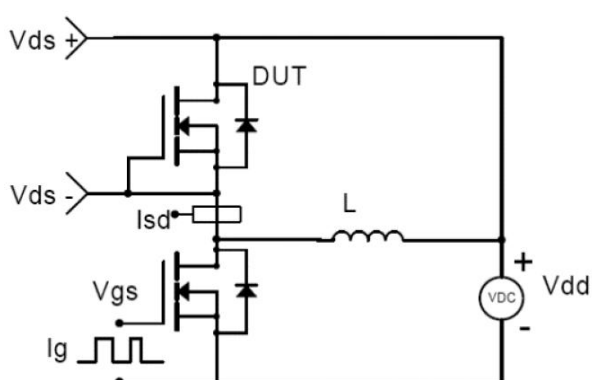
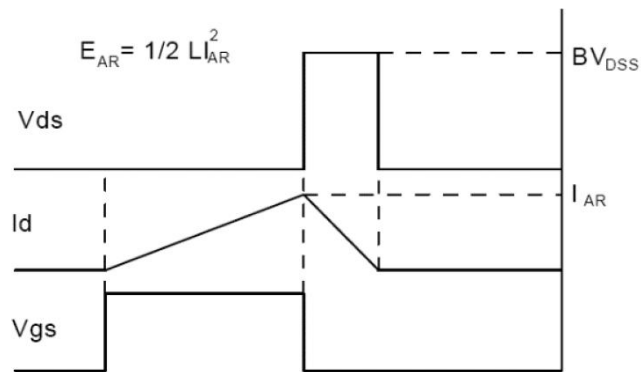
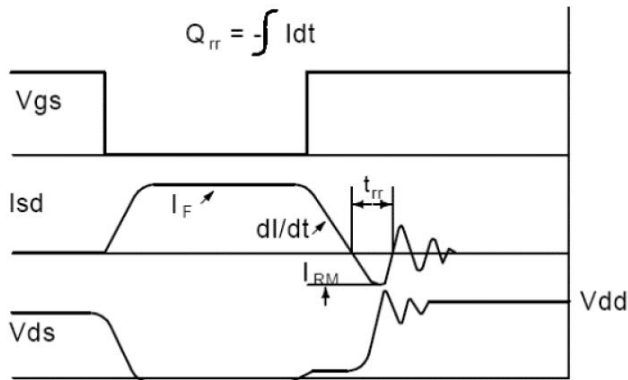
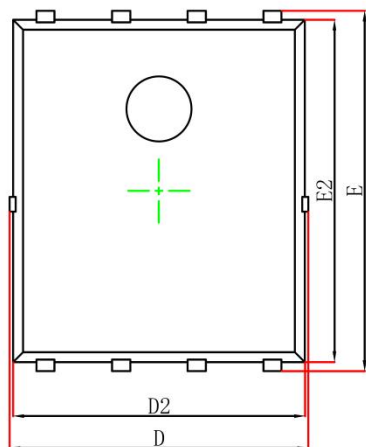
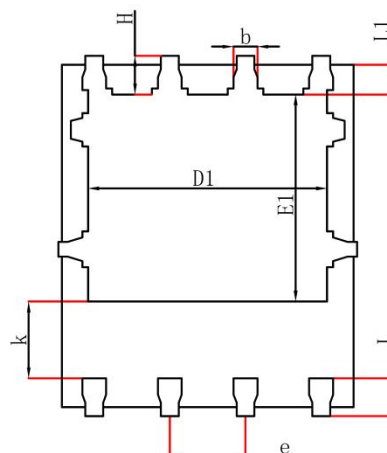


Figure 4, Diode reverse recovery test circuit & waveforms

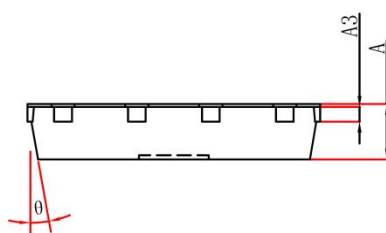


PDFN5X6-8L Package Information


Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°