Lastinght

JH30N20F

- ★ Super Low Gate Charge
- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

Product Summary

Green

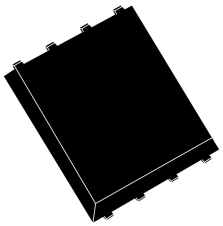
BVDSS	RDSON	ID
200V	57 mΩ	30A

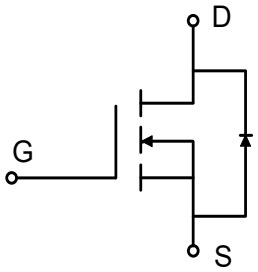
Description

The JH30N20F is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The JH30N20F meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

PDFN5X6 Pin Configuration





Absolute Maximum Ratings (TC= 25℃ unless otherwise specified):

Symbol	Parameter		Rating	Unit
Common Ratings (Tc=25°C Unless Otherwise Noted)				
VDSS	Drain-Source Voltage		200	V
VGSS	Gate-Source Voltage		±20	V
TJ	Maximum Junction Temperature		-55 to 175	°C
TSTG	Storage Temperature Range		-55 to 175	°C
IS	Source Current-Continuous(Body Diode)	Tc=25°C	30	A
Mounted on Large Heat Sink				
IDM	Pulsed Drain Current *	Tc=25°C	120	A
ID	Continuous Drain Current	Tc=25°C	30	A
		Tc=100°C	20	A
PD	Maximum Power Dissipation	Tc=25°C	125	W
		Tc=100°C	62.5	W
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case		1.2	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient **		50	°C/W
EAS	Single Pulsed-Avalanche Energy ***	L=0.5mH	161.8	mJ

Electrical Characteristics(Tc =25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	HY1920			Unit
			Min	Typ.	Max	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_{DS}=250μA	200	-		V
I_{DSS}	Drain-to-Source Leakage Current	V_{DS}=200V,V_{GS}=0V	-	-	1	μA
		T_J=55°C	-	-	50	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	3.0	3.7	5.0	V
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$*	Drain-Source On-State Resistance	V_{GS}=10V,I_{DS}=45A		57	72	mΩ
Diode Characteristics						
V_{SD}*	Diode Forward Voltage	I_{SD}=45A,V_{GS}=0V	-	0.84	1.3	V
t_{rr}	Reverse Recovery Time	I_{SD}=45A,dI_{SD}/dt=100A/μs	-	97.7	-	ns
Q_{rr}	Reverse Recovery Charge		-	424.7	-	nC

Electrical Characteristics (Cont.) (Tc =25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	HY1920			Unit
			Min	Typ.	Max	
Dynamic Characteristics						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V, F=1MHz	-	3.5	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V,	-	2570	-	pF
C_{oss}	Output Capacitance	V_{DS}=25V,	-	199	-	
C_{rss}	Reverse Transfer Capacitance	Frequency=1.0MHz	-	97	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=100V,R_G=4Ω, I_{DS}=45A,V_{GS}=10V	-	15.18	-	ns
T_r	Turn-on Rise Time		-	39.7	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	33.4	-	
T_f	Turn-off Fall Time		-	35.3	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DS} =100V, V_{GS}=10V, I_D=30A	-	53	-	nC
Q_{gs}	Gate-Source Charge		-	15	-	
Q_{gd}	Gate-Drain Charge		-	19	-	

[a1]: Repetitive rating; pulse width limited by maximum junction temperature

Typical Operating Characteristic

Figure 1: Power Dissipation

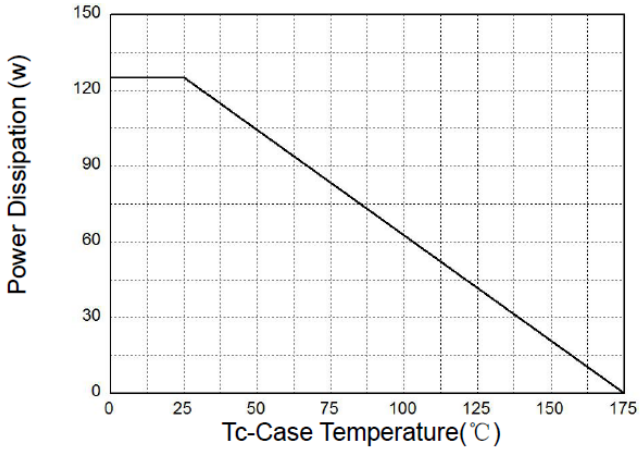


Figure 2: Drain Current

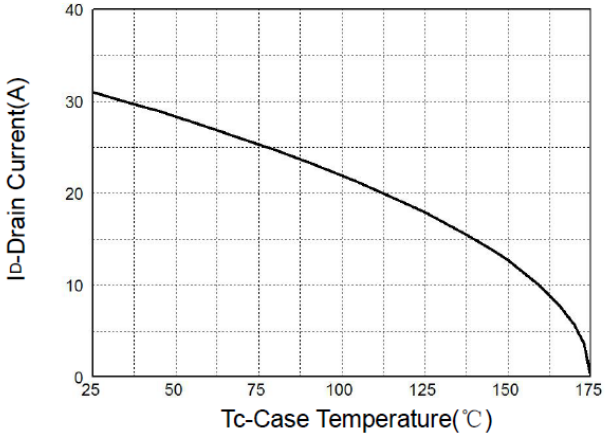


Figure 3: Safe Operation Area

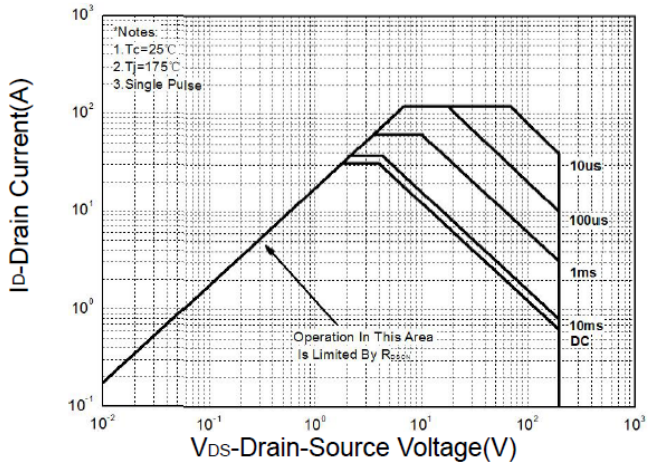


Figure 4: Thermal Transient Impedance

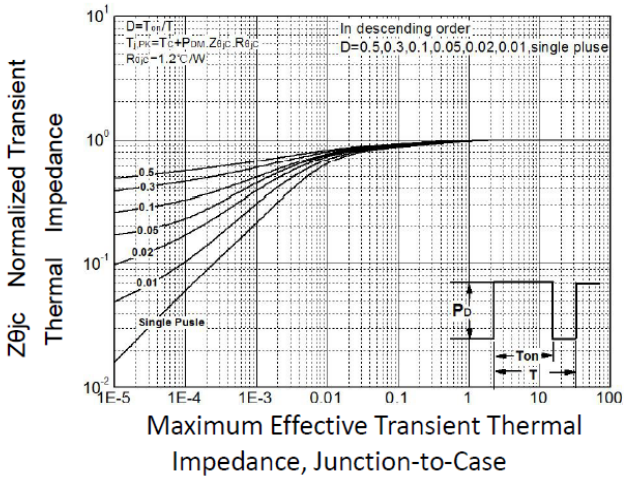


Figure 5: Output Characteristics

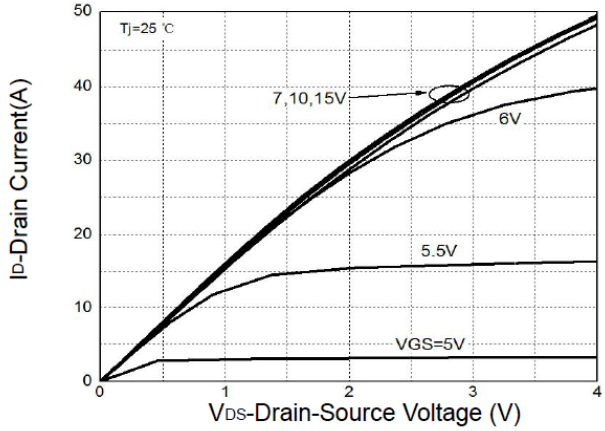
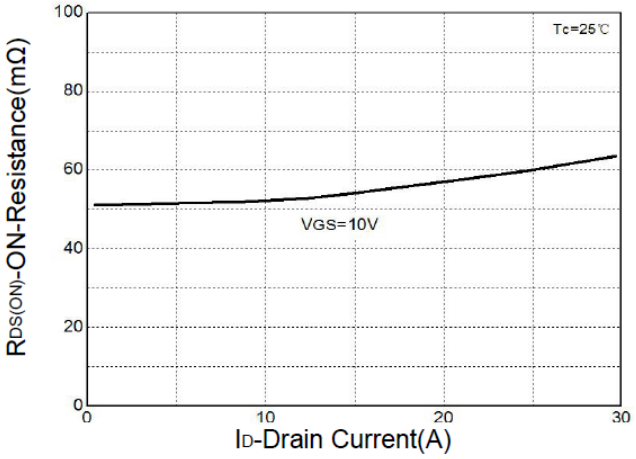


Figure 6: Drain-Source On Resistance



Typical Operating Characteristics(Cont.)

Figure 7: On-Resistance vs. Temperature

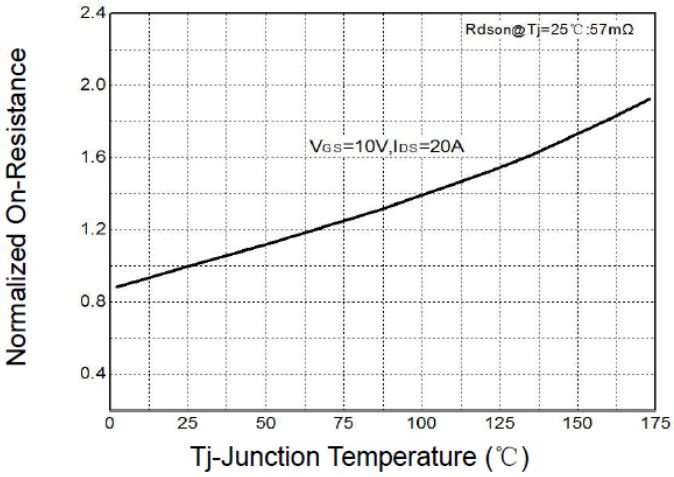


Figure 8: Source-Drain Diode Forward

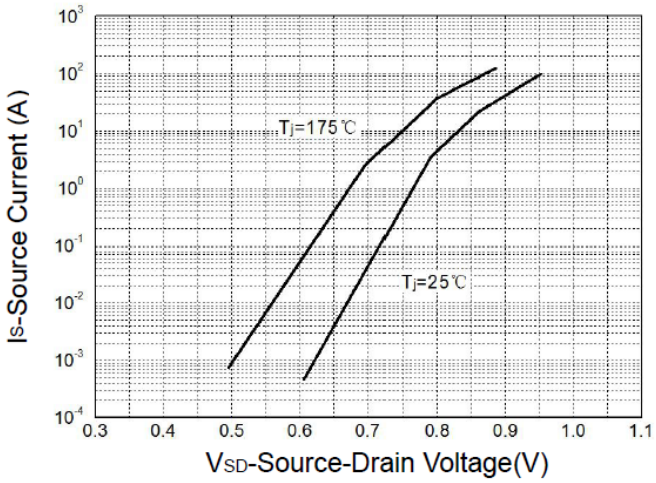


Figure 9: Capacitance Characteristics

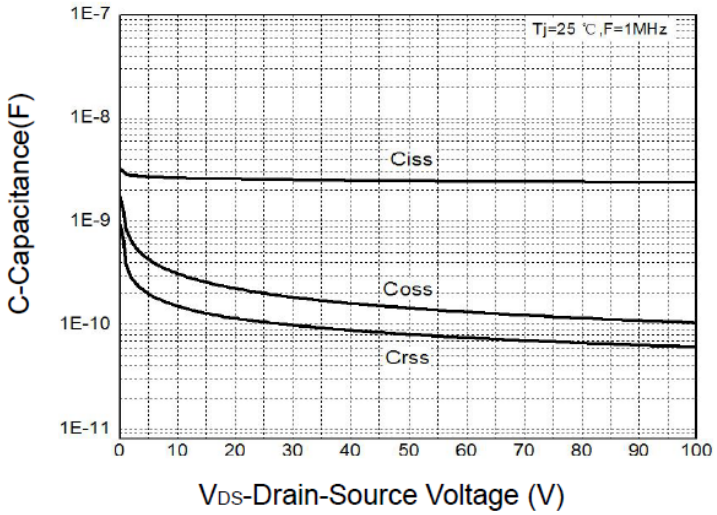
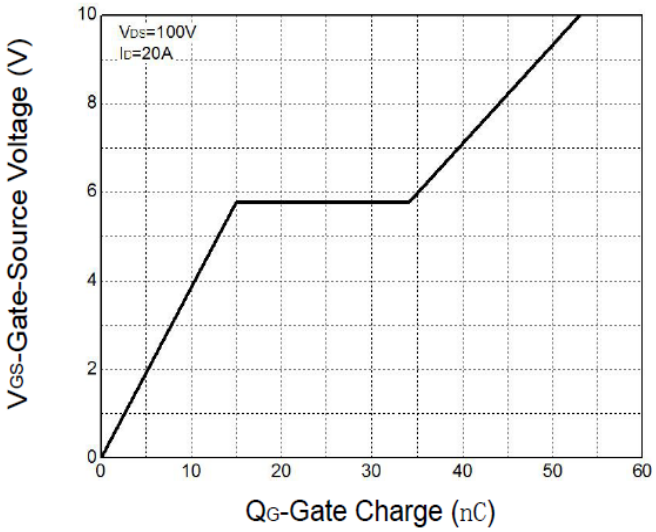
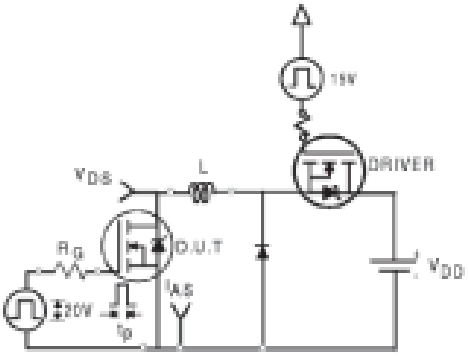
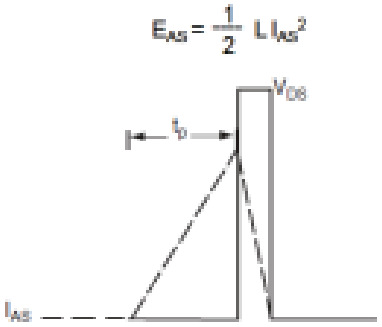


Figure 10: Gate Charge Characteristics

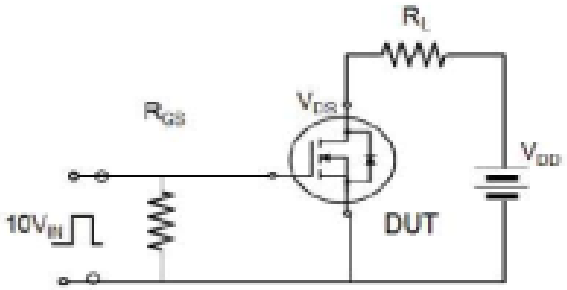


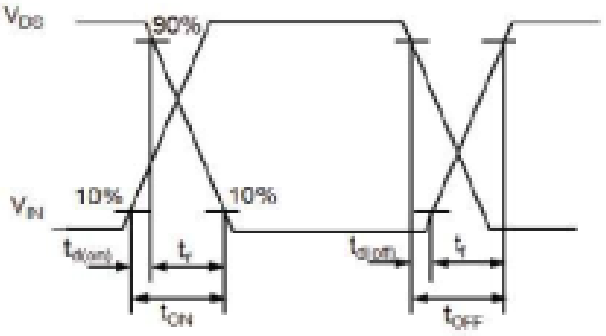
Avalanche Test Circuit



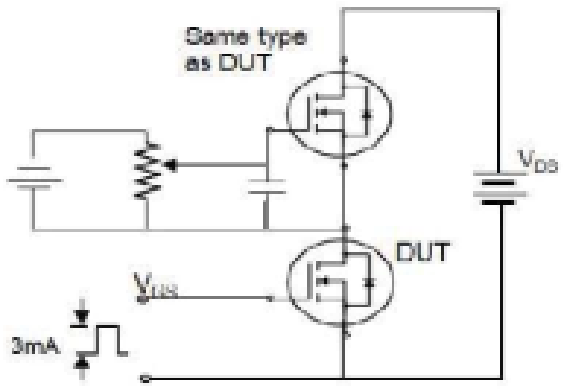


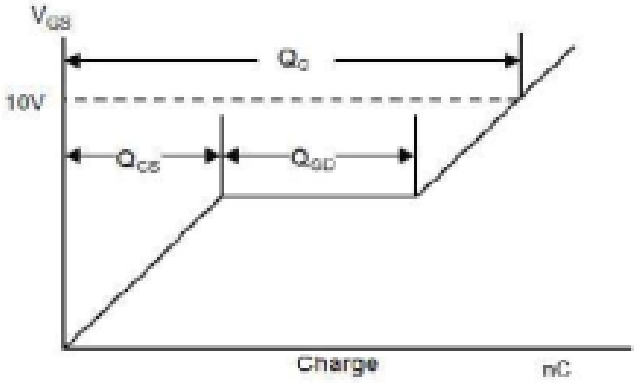
Switching Time Test Circuit





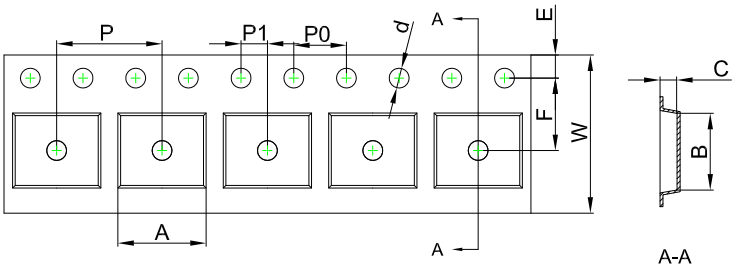
Gate Charge Test Circuit





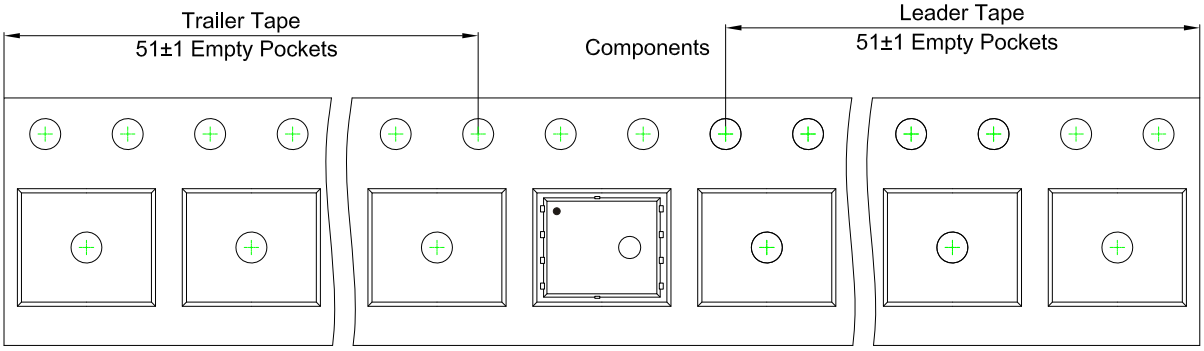
PDFN5×6 Tape and Reel

PDFN5×6 Embossed Carrier Tape

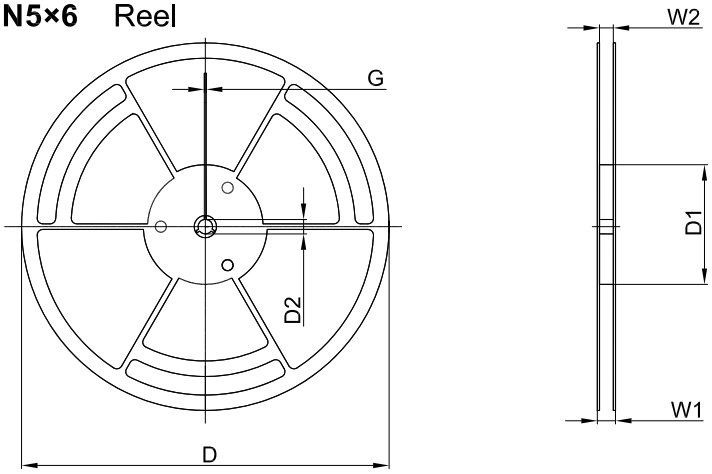


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
PDFN5×6	6.30	5.30	1.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFN5×6 Tape Leader and Trailer

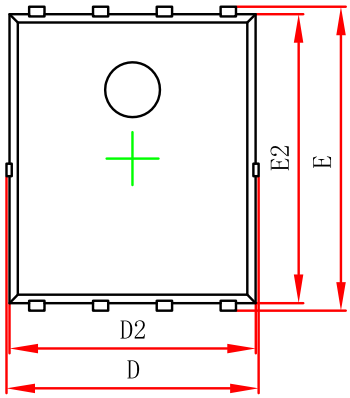


PDFN5×6 Reel

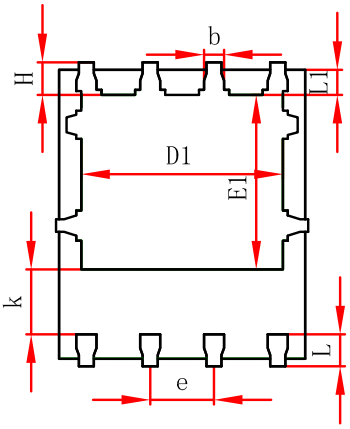


Dimensions are in millimeter						
Reel Option	D	D1	D2	G	W1	W2
13"Dia	Ø330.00	100.00	13.00	1.90	17.60	12.40

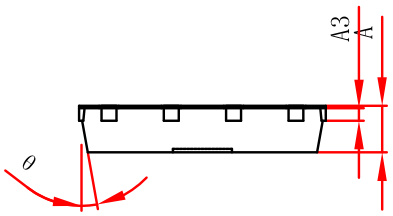
REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
5,000 pcs	13 inch	5,000 pcs	340×336×29	50,000 pcs	353×346×365



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°

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