Feature

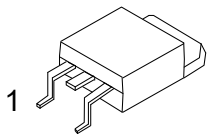
◇Special process technology for high ESD capability
◇High density cell design for ultra low Rdson
◇Fully characterized avalanche voltage and current
◇Good stability and uniformity with high EAS
◇Excellent package for good heat dissipation

Product Summary

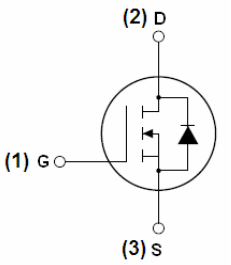
V_{DS}	150	V
$R_{DS(on),Max}$@ V_{GS}=10 V	26	mΩ
I_D	40	A

Application

◇Power switching application
◇Hard switched and high frequency circuits
◇Power Tools
◇UPS
◇Motor Control



TO-252



Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	150	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current-Continuous	40	A
I_D (100℃)	Drain Current-Continuous(TC=100℃)	28	A
I_{DM}	Pulsed Drain Current	88	A
P_D	Maximum Power Dissipation	98	W
	Derating factor	0.57	W/℃
E_{AS}	Single pulse avalanche energy (Note 5)	256	mJ
T_J,T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃

Thermal Characteristic

$R_{\theta JC}$	Thermal Resistance, Junction-to-Case (Note 2)	1.8	℃/W

Electrical Characteristics (TC=25℃unless otherwise noted)

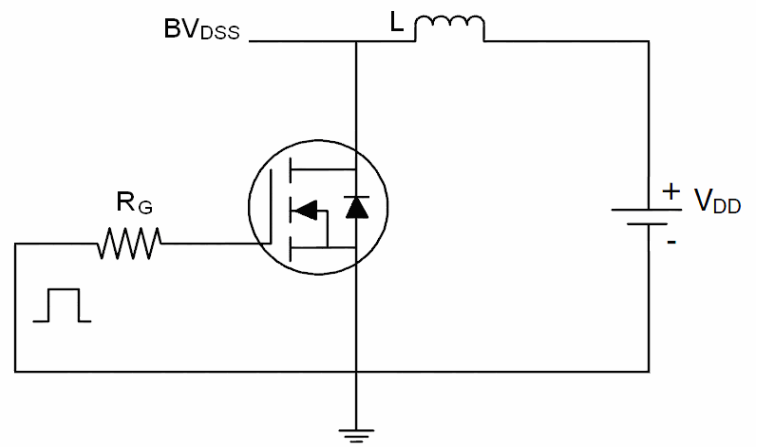
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	150	-	200	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=120V,V_{GS}=0V	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On Characteristics (Note 3)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	1.2	1.8	2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=10V, I_D=15A	-	23	26	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=4.5V, I_D=15A	-	26	34	mΩ
g_{FS}	Forward Transconductance	V_{DS}=5V,I_D=15A	-	15	-	S
Dynamic Characteristics (Note4)						
C_{lss}	Input Capacitance	V_{DS}=75V,V_{GS}=0V, F=1.0MHz	-	2500	-	PF
C_{oss}	Output Capacitance		-	293	-	PF
C_{rss}	Reverse Transfer Capacitance		-	224	-	PF
Switching Characteristics (Note 4)						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=75V,R_L=5Ω V_{GS}=10V,R_{GEN}=3Ω	-	17	-	nS
t_r	Turn-on Rise Time		-	27	-	nS
$t_{d(off)}$	Turn-Off Delay Time		-	39	-	nS
t_f	Turn-Off Fall Time		-	7	-	nS
Q_g	Total Gate Charge	V_{DS}=75V,I_D=15A, V_{GS}=10V	-	39	-	nC
Q_{gs}	Gate-Source Charge		-	8	-	nC
Q_{gd}	Gate-Drain Charge		-	12	-	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage (Note 3)	V_{GS}=0V,I_S=15A	-	-	1.2	V
I_S	Diode Forward Current (Note 2)	-	-	-	40	A
t_{rr}	Reverse Recovery Time	TJ = 25°C, IF = 10A di/dt = 100A/μs (Note3)	-	32	-	nS
Qrr	Reverse Recovery Charge		-	53	-	nC
t_{on}	Forward Turn-On Time	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

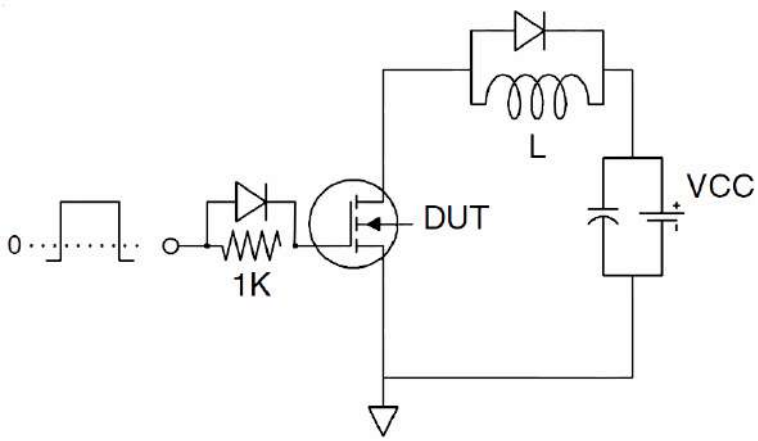
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production
5. EAS Condition : Tj=25℃,V_{DD}=120V,V_G=10V,L=0.5mH,Rg=25Ω, I_{AS}=32A

Test Circuit

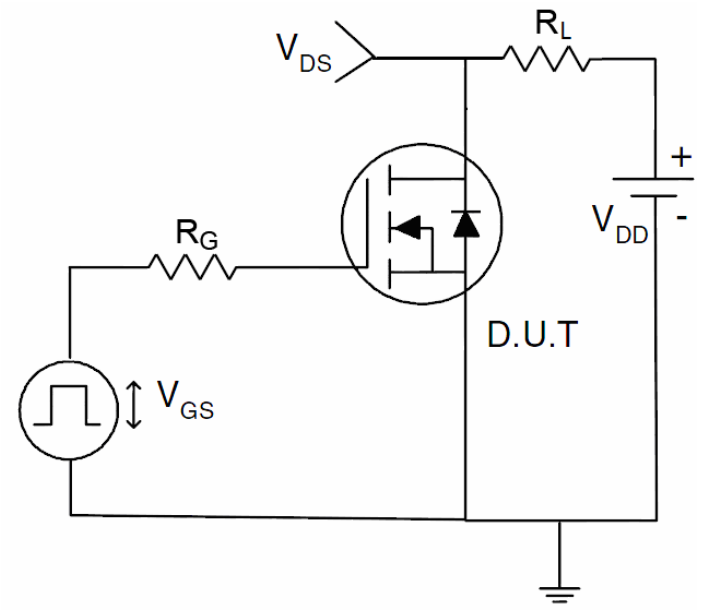
1) $_{AS}$ Test Circuit



2) Gate C rge Test Circuit



3) witch Time Test Circuit



Typical Electrical and Thermal Characteristics (Curves)

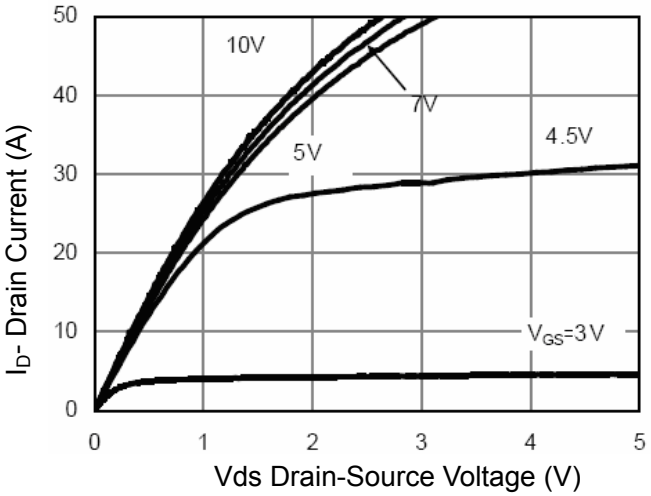


Figure 1 Output Characteristics

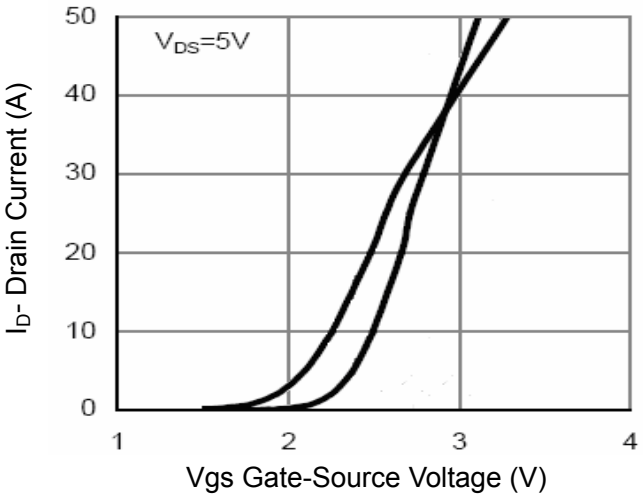


Figure 2 Transfer Characteristics

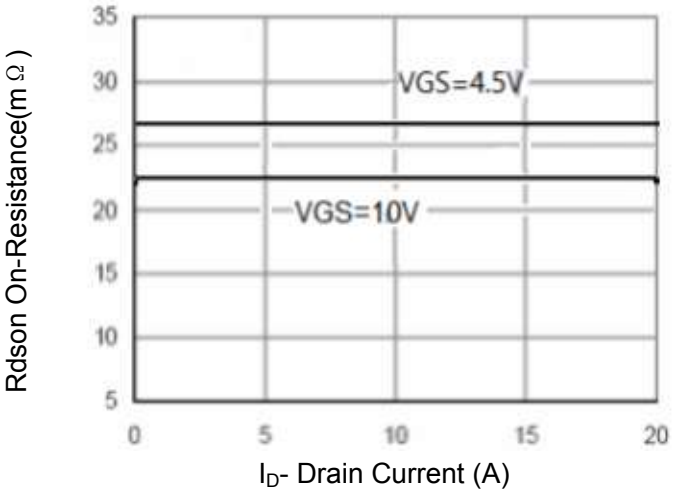


Figure 3 Rdson- Drain Current

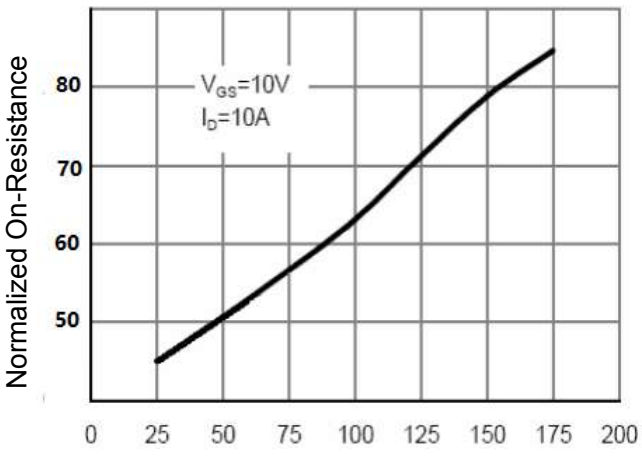


Figure 4 Rdson-JunctionTemperature

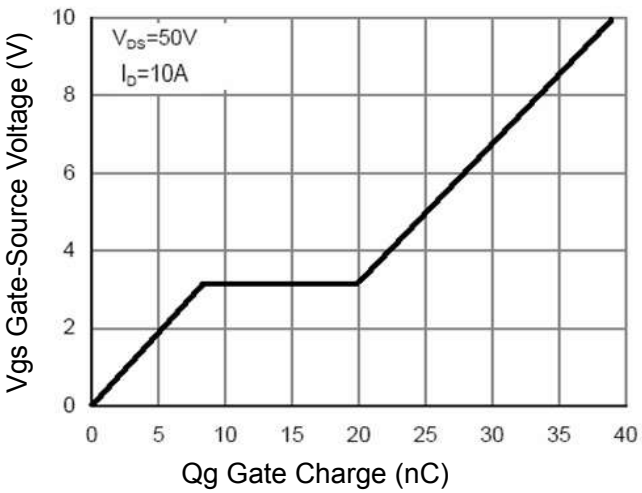


Figure 5 Gate Charge

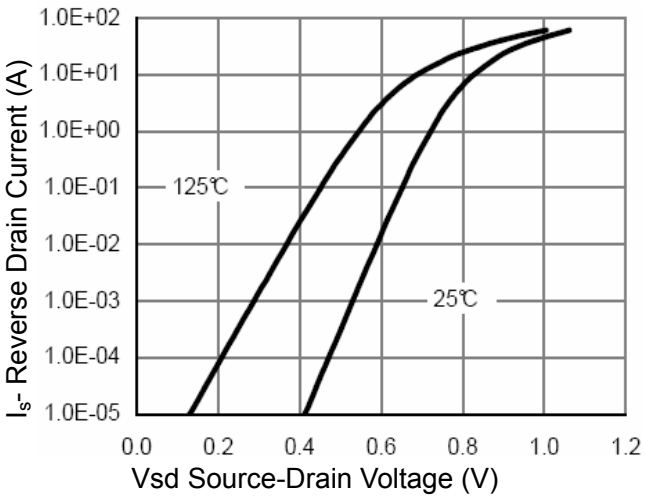


Figure 6 Source- Drain Diode Forward

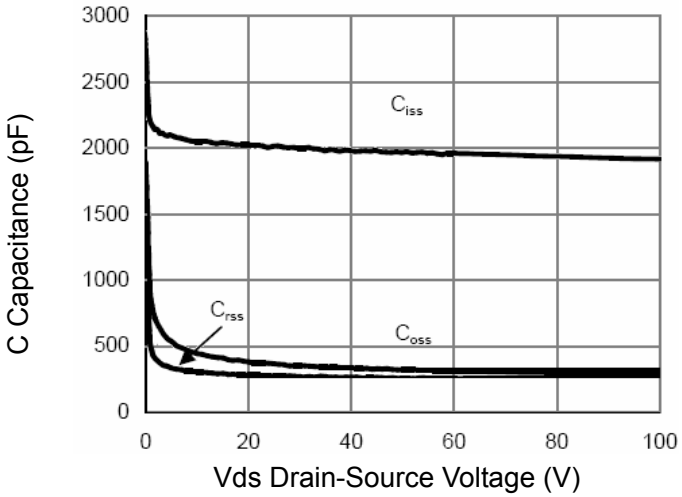


Figure 7 Capacitance vs Vds

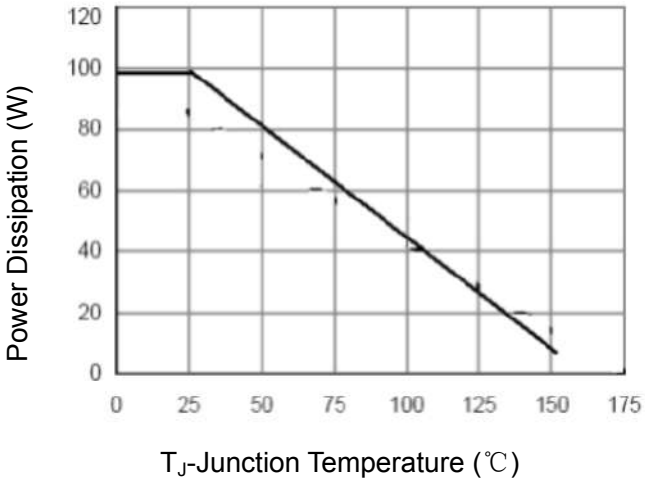


Figure 9 Power De-rating

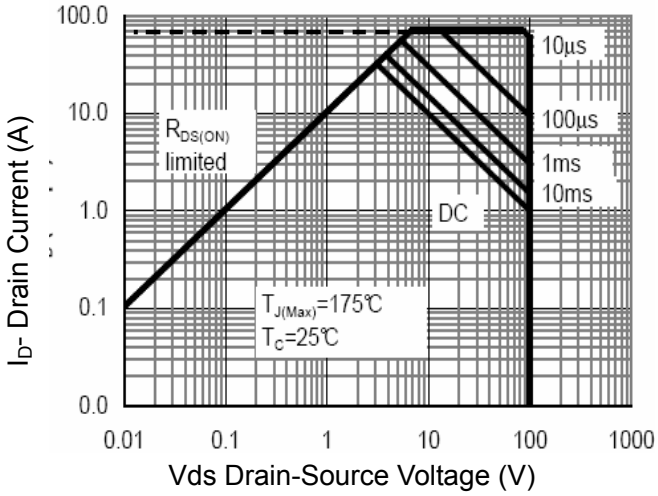


Figure 8 Safe Operation Area

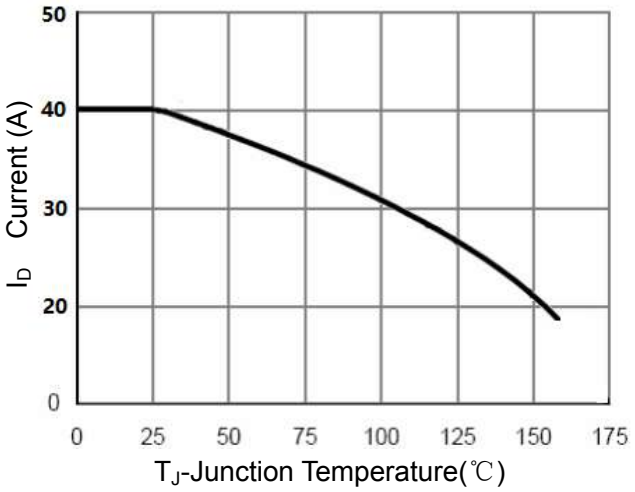


Figure 10ID Current- Junction Temperature

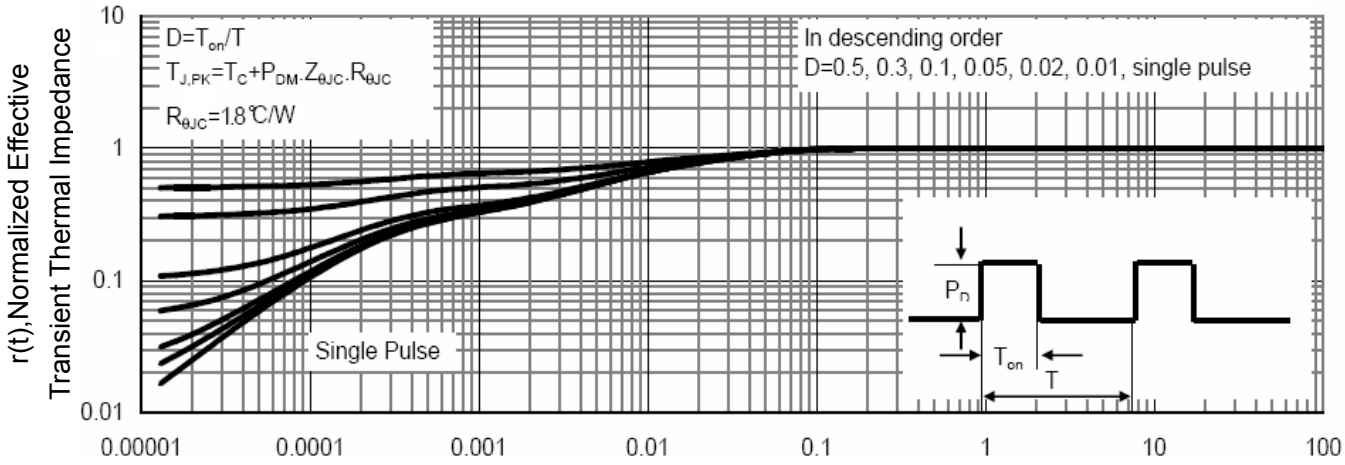
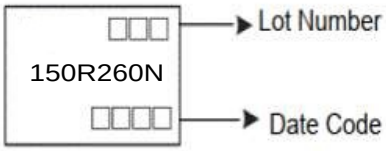
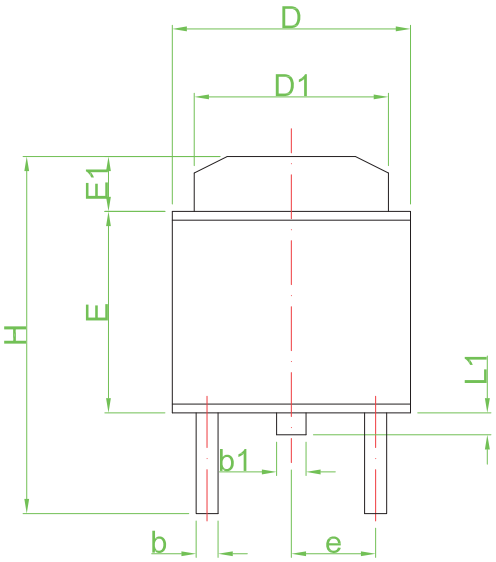


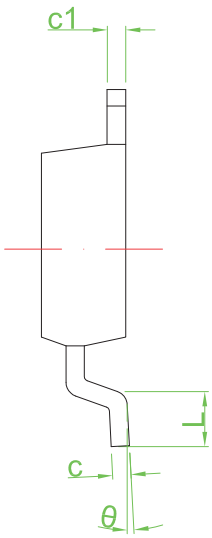
Figure 11 Normalized Maximum Transient Thermal Impedance

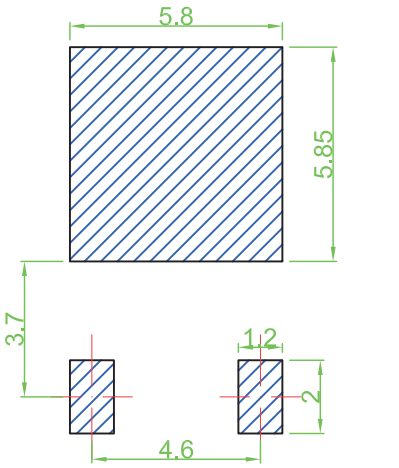
Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
JMD150R260NKQ-R	150R260N	TO-252	Tape& Reel	2500/Reel

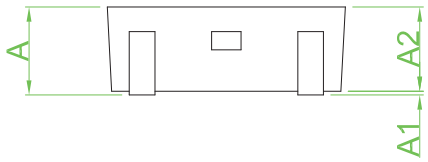
PACKAGE	MARKING
TO-252	



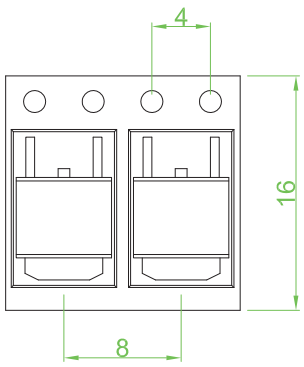




Recommended Land Pattern



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	2.25	2.65	0.089	0.104
A1	0.00	0.15	0.000	0.006
A2	2.20	2.40	0.087	0.094
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.46	0.66	0.018	0.026
c1	0.46	0.66	0.018	0.026
D	6.30	6.70	0.248	0.264
D1	5.20	5.40	0.205	0.213
E	5.30	5.70	0.209	0.224
E1	1.40	1.60	0.055	0.063
H	9.40	9.90	0.370	0.390
e	2.30 TYP		0.09 TYP	
L	1.40	1.77	0.055	0.070
L1	0.50	0.70	0.020	0.028
θ	0°	8°	0°	8°



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