KODENSHI AUK

KMK0260I

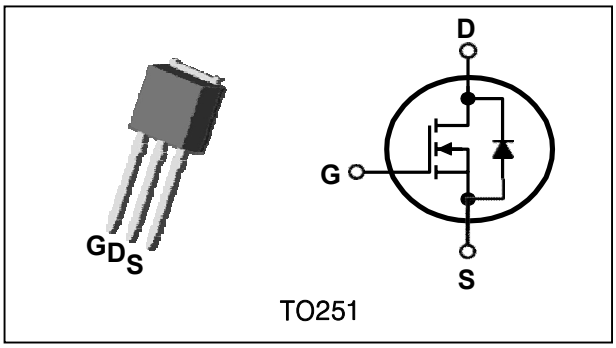
Advanced N-Ch Power MOSFET

SWITCHING REGULATOR APPLICATIONS

Features

- High Voltage : BV_{DSS}=600V(Min.)
- $R_{DS(on)}$: $R_{DS(on)}$=7.0Ω(Max.)

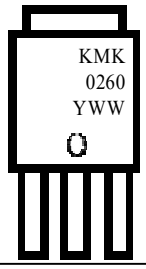
PIN Connection



Ordering Information

Type No.	Marking	Package Code
KMK0260I	KMK0260.	TO251

Marking Diagram



Column 1,2 : Device Code

Column 3 : Production Information
e.g.) YWW.
-. YWW : Date Code (year, week)
-. . : Dalian

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

Characteristic	Symbol		Rating	Unit
Drain-source voltage	V_{DSS}		600	V
Gate-source voltage	V_{GSS}		±30	V
Drain current (DC)	I_D	(Tc=25℃)	2.0	A
		(Tc=100℃)	1.3	A
Drain current (Pulsed) 1)	I_{DM}		8.0	A
Power dissipation	P_D		28	W
Avalanche current (Single)	I_{AS}		2.0	A
Single pulsed avalanche energy 2)	E_{AS}		140	mJ
Avalanche current (Repetitive)	I_{AR}		2.0	A
Repetitive avalanche energy 1)	E_{AR}		2.8	mJ
Storage temperature range	T_{stg}		-55~150	°C

* Limited by maximum junction temperature

Characteristic		Symbol	Typ.	Max.	Unit
Thermal resistance	Junction-Lead max	$R_{th(C-S)}$	-	40	°C/W
	Junction-ambient	$R_{th(J-A)}$	-	62.5	

Electrical Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	BV_{DSS}	I_D=250uA, V_{GS}=0	600	-	-	V
Gate threshold voltage	$V_{GS(th)}$	I_D=250uA, V_{DS}=V_{GS}	2.0	-	4.5	V
Drain-source cut-off current	I_{DSS}	V_{DS}=600V, V_{GS}=0V	-	-	1	uA
		V_{DS}=600V, V_{GS}=0V, T_C=125°C			100	
Gate leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±30V	-	-	±100	nA
Drain-source on-resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=1.0A	-	5.0	7.0	∧
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=25V, f=1MHz	-	450	530	pF
Output capacitance	Coss		-	45	50	
Reverse transfer capacitance	Crss		-	9	10	
Turn-on delay time	$t_{d(on)}$	V_{DD}=350V, I_D=2.0A R_G=25Ω	-	-	55	ns
Rise time	t_r		-	-	90	
Turn-off delay time	$t_{d(off)}$		-	-	100	
Fall time	t_f		-	-	70	
Total gate charge	Q_g	V_{DS}=480V, V_{GS}=10V I_D=2.0A	-	15.1	21	nC
Gate-source charge	Q_{gs}		-	2.2	3	
Gate-drain charge	Q_{gd}		-	4.4	6	

Source-Drain Diode Ratings and Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Source current (DC)	I_S	Integral reverse diode in the MOSFET	-	-	2.0	A
Source current (Pulsed)	I_{SM}		-	-	8.0	
Forward voltage	V_{SD}	V_{GS}=0V, I_S=2.0A	-	-	1.4	V
Reverse recovery time	t_{rr}	I_S=2.0A, V_{GS}=0V dI_F/dt=100A/us	-	260	-	ns
Reverse recovery charge	Q_{rr}		-	1.09	-	uC

Note ;

1) Repetitive rating : Pulse width limited by maximum junction temperature

2) L=95mH, I_{AS}=0.5A, V_{DD}=50V, R_G=25Ω, Starting T_J=25℃

3) Pulse Test : Pulse width≤300us, Duty cycle≤2%

4) Essentially independent of operating temperature

Electrical Characteristic Curves

Fig. 1. On-state characteristics

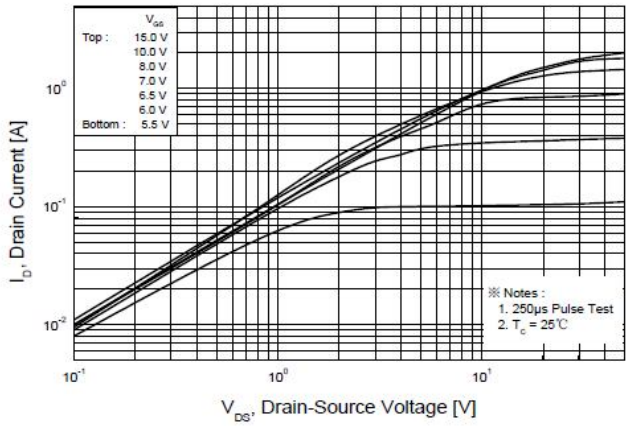


Fig. 2. Transfer characteristics

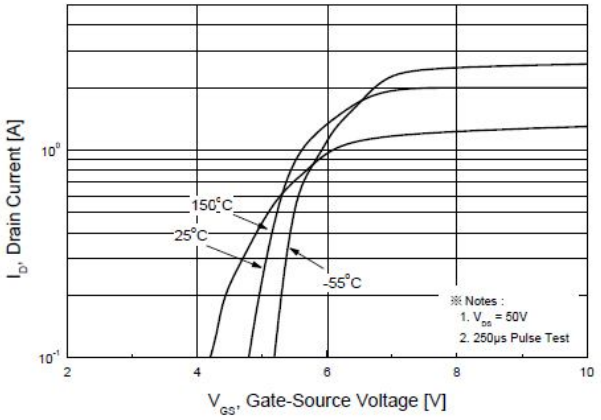


Fig. 3. On-resistance variation vs. drain current and gate voltage

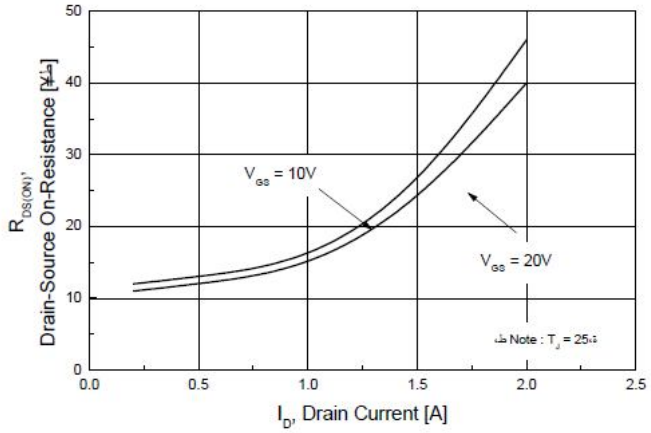


Fig. 4. On state current vs. diode forward voltage

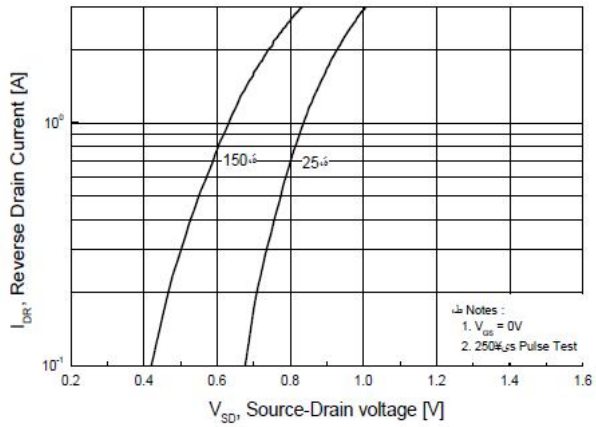


Fig. 5. Capacitance characteristics (Non-Repetitive)

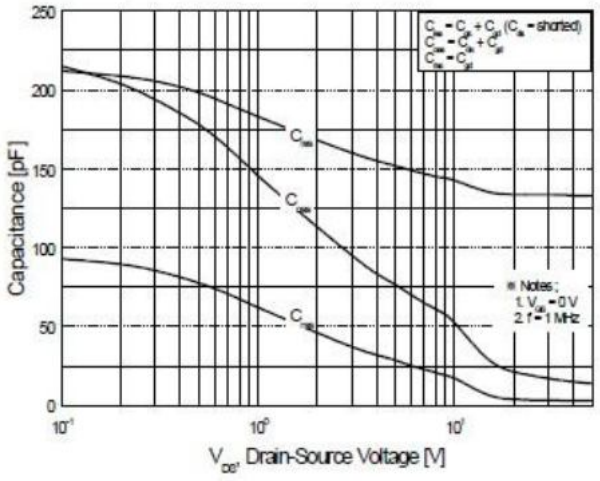
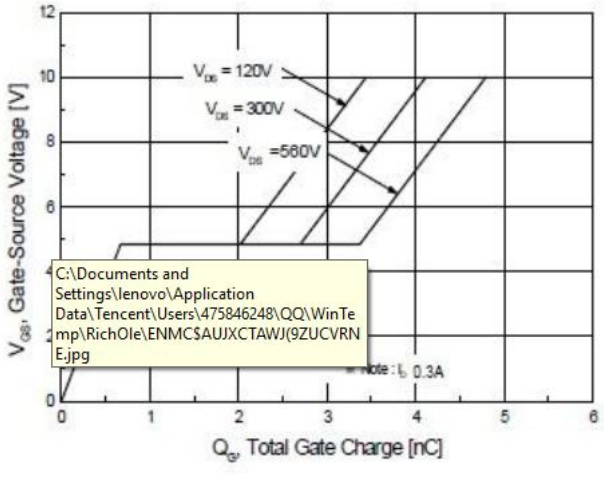


Fig. 6. Gate charge characteristics



C:\Documents and Settings\lenovo\Application Data\Tencent\Users\475846248\QQ\WinTemp\RichOle\ENMC$AUJXCTAWJ(9ZUCVRNE.jpg

Fig 7. Breakdown Voltage Variation vs. Junction Temperature

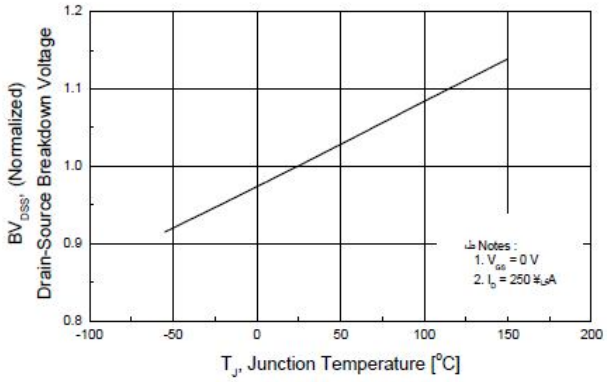


Fig. 8. On resistance variation vs. junction temperature

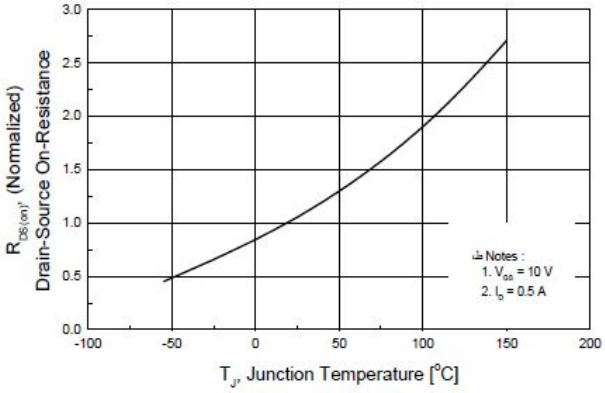


Fig. 9. Maximum drain current vs. case temperature.

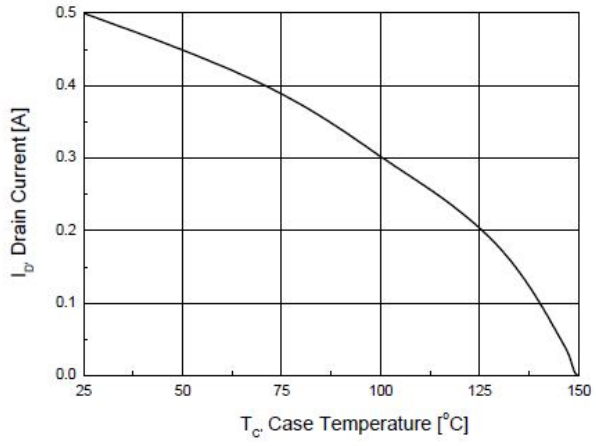


Fig. 10. Maximum safe operating area

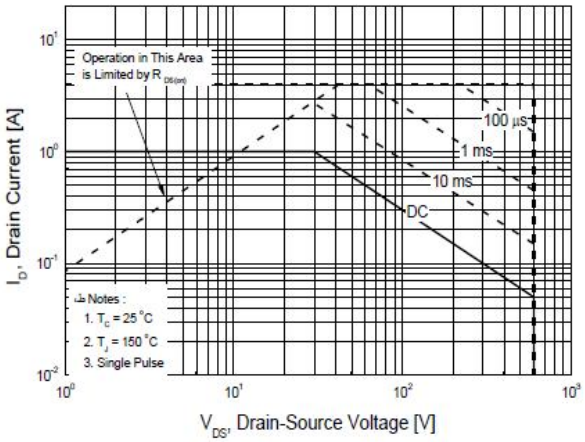


Fig. 11. Transient thermal response curve

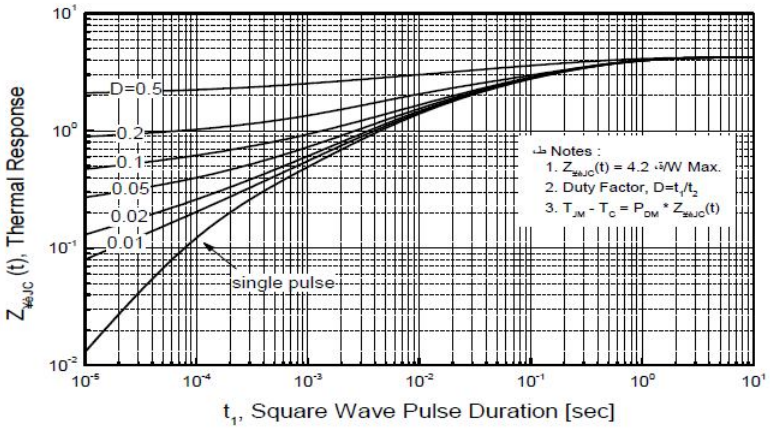


Fig. 12. Gate charge test circuit & waveform

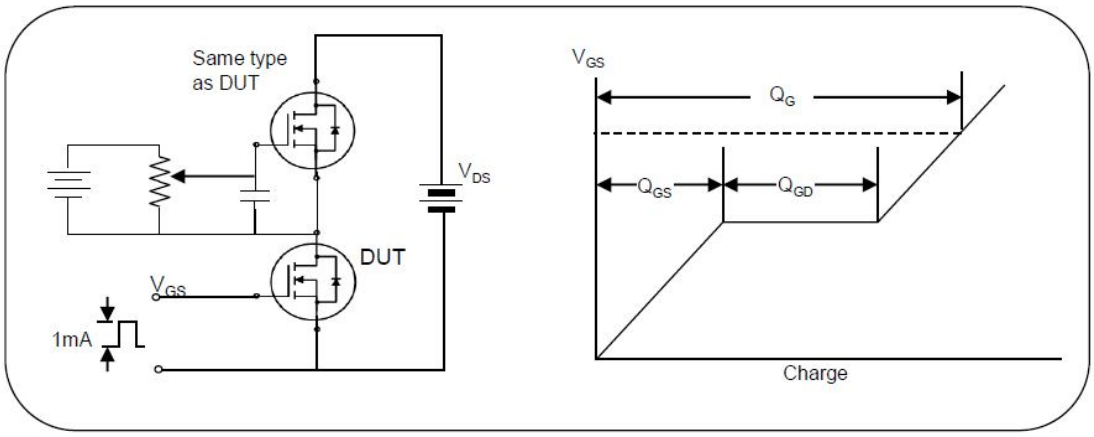


Fig. 13. Switching time test circuit & waveform

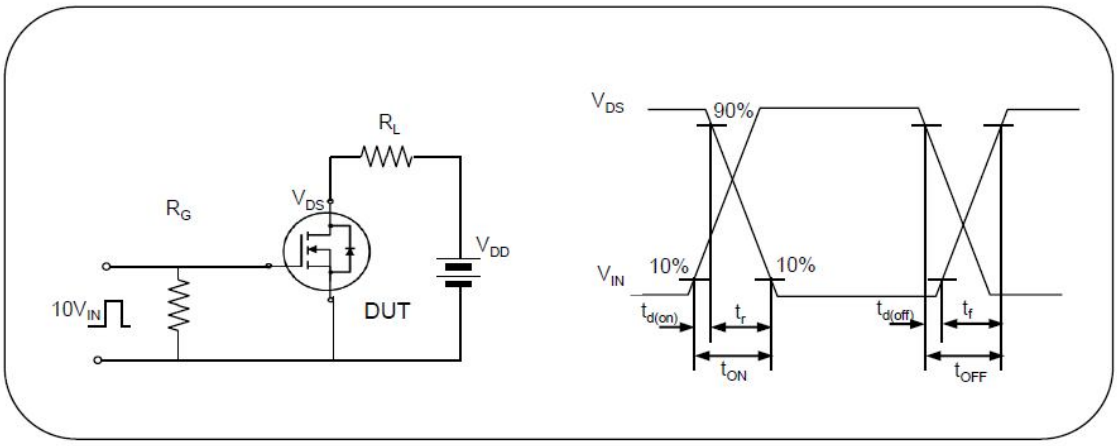


Fig. 14. Unclamped Inductive switching test circuit & waveform

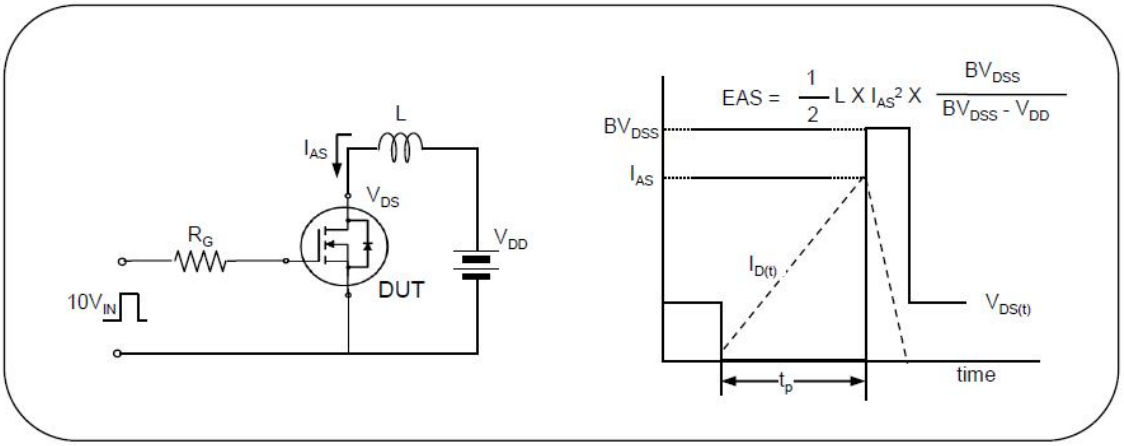
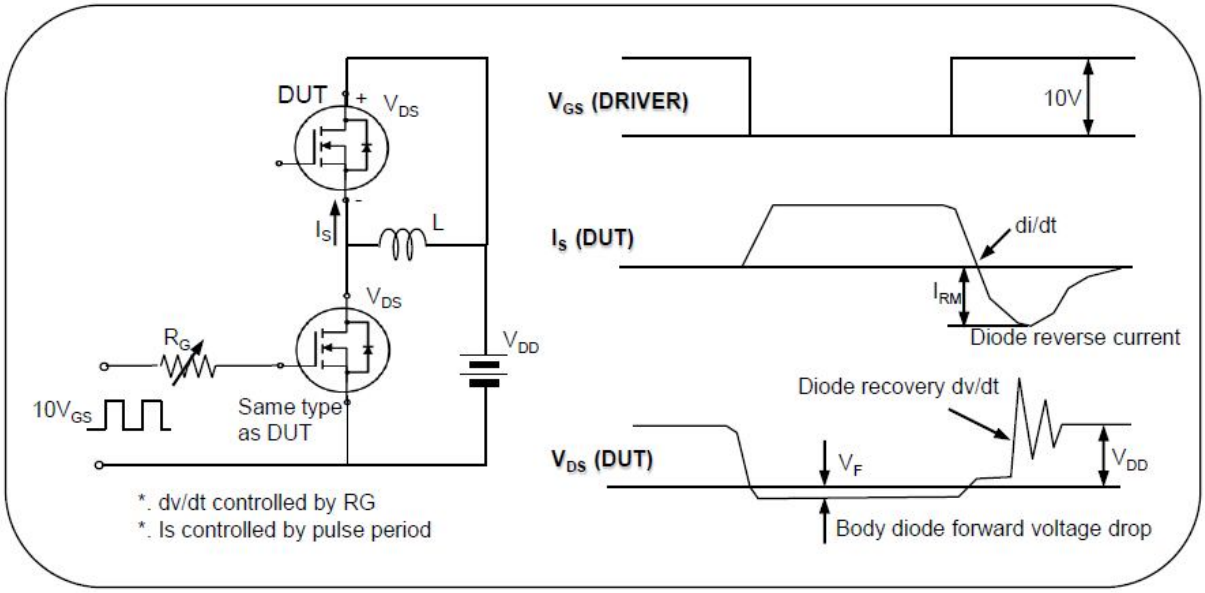
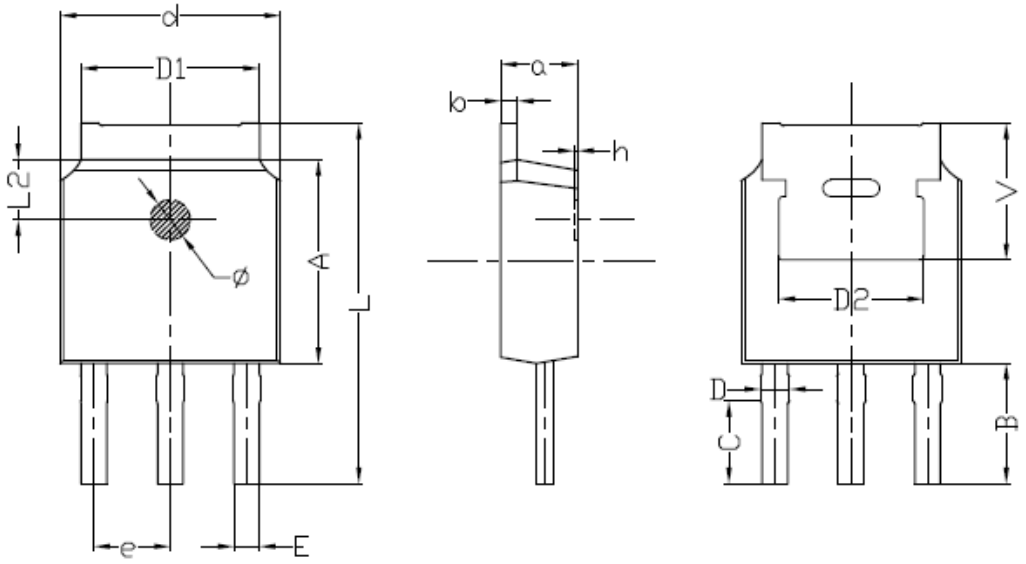


Fig. 15. Peak diode recovery dv/dt test circuit & waveform



Outline Dimension

unit: mm



Symbol	DimensionsIn Millimeters		DimensionsIn Inches	
	min.	max.	min.	max.
a	2.20	2.40	0.087	0.0946
b	0.46	0.58	0.018	0.023
C	2.45	2.65	0.097	0.104
D	0.80	0.90	0.032	0.035
d	6.30	6.70	0.248	0.264
D1	5.00	5.50	0.197	0.217
D2	TYP 4.83		TYP 0.190	
A	5.80	6.20	0.228	0.244
e	2.19	2.39	0.086	0.094
L	10.40	11.00	0.4098	0.4334
B	3.50	3.70	0.1379	0.1458
L2	1.5	1.8	0.059	0.071
ϕ	1.10	1.30	0.0433	0.0512
h	0.00	0.30	0.000	0.012
V	5.25	5.85	0.207	0.230
E	0.60	0.80	0.0236	0.0315

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