
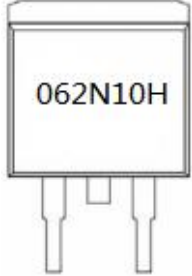
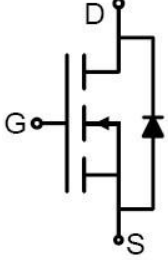


## Description

<p><b>Features</b></p> <ul style="list-style-type: none"> <li>● N-channel, normal level</li> <li>● Excellent Gate charge <math>\times R_{DS(on)}</math> (FOM)</li> <li>● Very low on-resistance <math>R_{DS(on)}</math></li> </ul>	<p><b>This chip is used for:</b></p> <ul style="list-style-type: none"> <li>● Industrial power supplies</li> <li>● Boost converters</li> <li>● Rectifier</li> <li>● Telecom</li> <li>● Industrial power supplies</li> </ul>	
 <p>TO-263(DPAK) top view</p>	 <p>Marking and pin Assignment</p>	 <p>Schematic Diagram</p>

## Absolute Maximum Ratings (T<sub>C</sub>=25°C unless otherwise specified)

Symbol	Parameter	Value	Units
V <sub>DS</sub>	Drain-Source Voltage	100	V
I <sub>D</sub>	Drain Current - Continuous (TC= 25°C)	110	A
	Drain Current - Continuous (TC= 100°C)	80	A
I <sub>DM</sub>	Drain Current - Pulsed (Note 1)	280	A
V <sub>GS</sub>	Gate-Source Voltage	± 20	V
E <sub>AS</sub>	Single Pulsed Avalanche Energy (Note 2)	620	mJ
P <sub>D</sub>	Power Dissipation (TC = 25°C)	165	W
T <sub>j</sub> , T <sub>stg</sub>	Operating and Storage Temperature Range	-55 to +175	°C

\* Drain current limited by maximum junction temperature

## Thermal Characteristics

Symbol	Parameter	Value	Units
R <sub>θJC</sub>	Thermal Resistance, Junction-to-Case	0.54	°C/W
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient	48	°C/W



#### Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

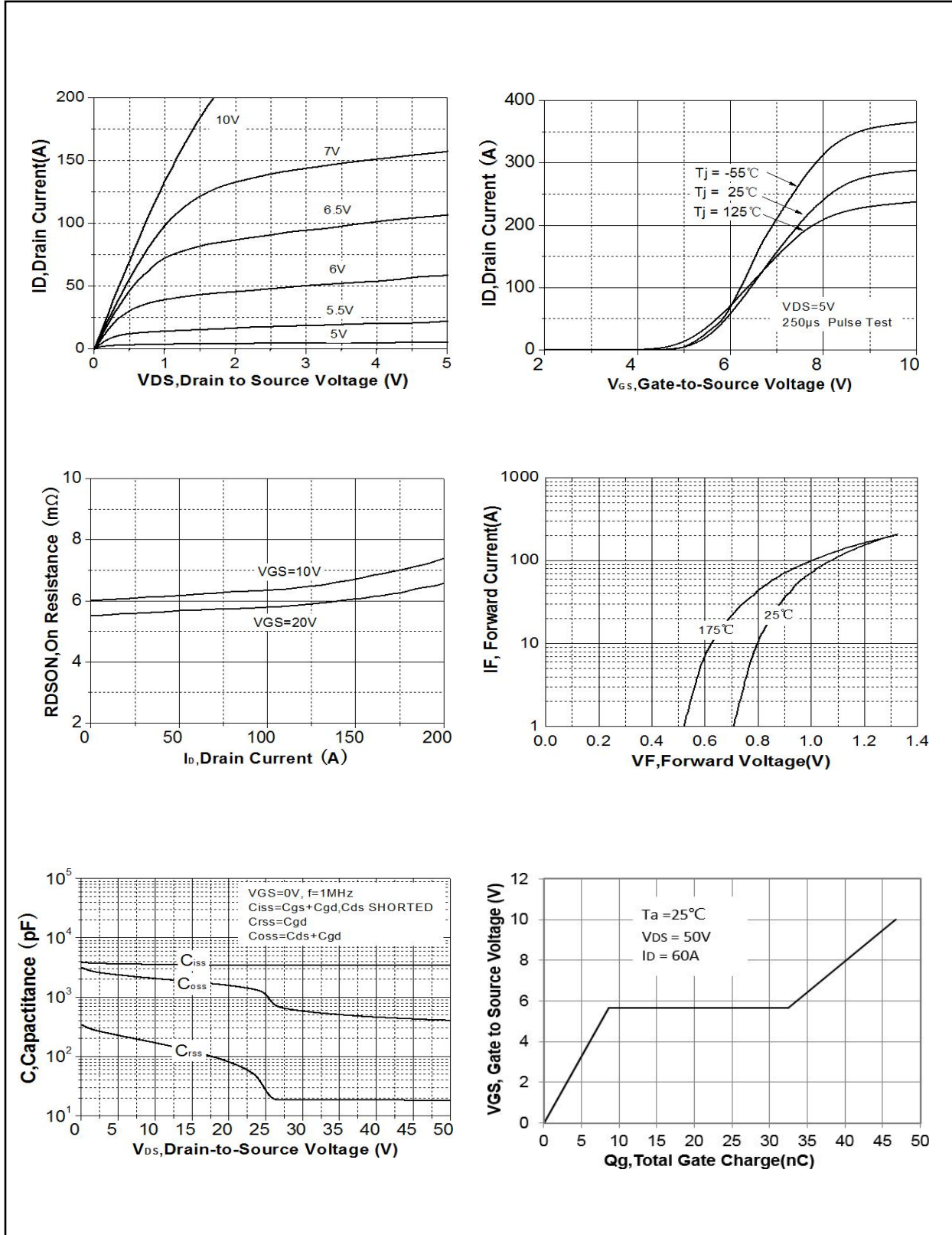
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
<b>Off Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA	100			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 100 V, V <sub>GS</sub> = 0 V			1	μA
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> = 20 V, V <sub>DS</sub> = 0 V			100	nA
<b>On Characteristics</b>						
V <sub>GS(TH)</sub>	Gate Threshold voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	2.5	3.4	4.5	V
R <sub>DS(On)</sub>	Drain-Source on-state resistance	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 40 A		6.2	7.2	mΩ
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 65 A (Note 3)		86		S
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input capacitance	V <sub>GS</sub> =0V,		3400		pF
C <sub>oss</sub>	Output capacitance	V <sub>DS</sub> =50V,		402		pF
C <sub>riss</sub>	Reverse transfer capacitance	f=1MHz		18		pF
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn On Delay Time	V <sub>DS</sub> = 50 V, I <sub>D</sub> = 65 A, V <sub>GS</sub> = 10 V, R <sub>G</sub> = 4.7 Ω (Note 3, 4)		23		ns
t <sub>r</sub>	Rising Time			31		ns
t <sub>d(off)</sub>	Turn Off Delay Time			32		ns
t <sub>f</sub>	Fall Time			12		ns
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = 50 V, I <sub>D</sub> = 65 A, V <sub>GS</sub> = 10 V (Note 3, 4)		47		nC
Q <sub>gs</sub>	Gate-Source Charge			9		nC
Q <sub>gd</sub>	Gate-Drain Charge			24		nC
R <sub>g</sub>	Gate Resistance	V <sub>DS</sub> = 0 V, Scan F mode		1.3		Ω
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> = 0 V, I <sub>S</sub> = 110A			1.3	V
T <sub>rr</sub>	Reverse recovery time	I <sub>S</sub> =65A, V <sub>GS</sub> = 0V,		51		ns
Q <sub>rr</sub>	Reverse recovery charge	di <sub>F</sub> /dt = 100A/us		73		nC

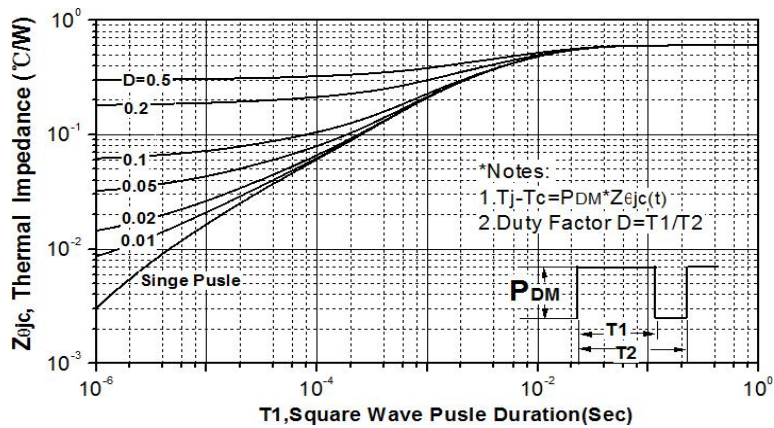
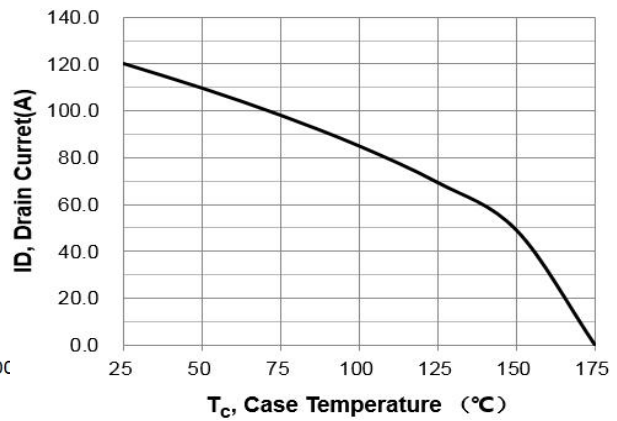
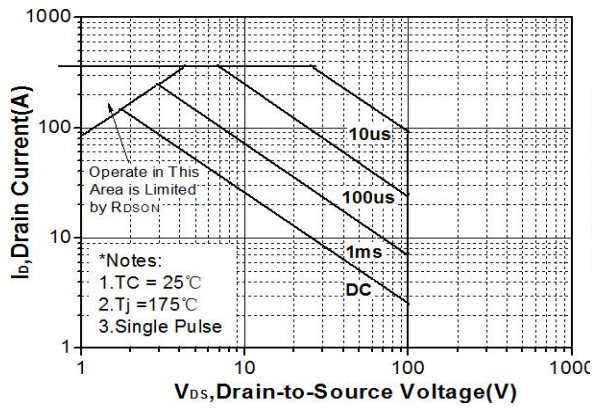
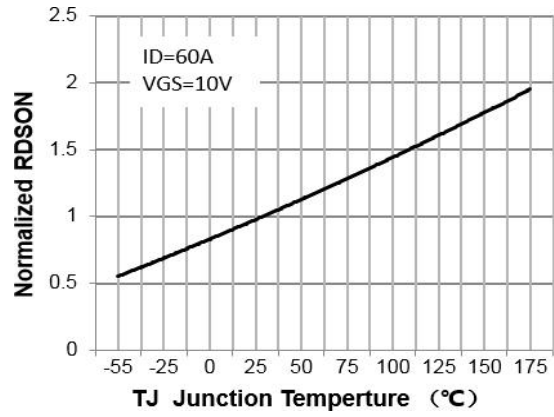
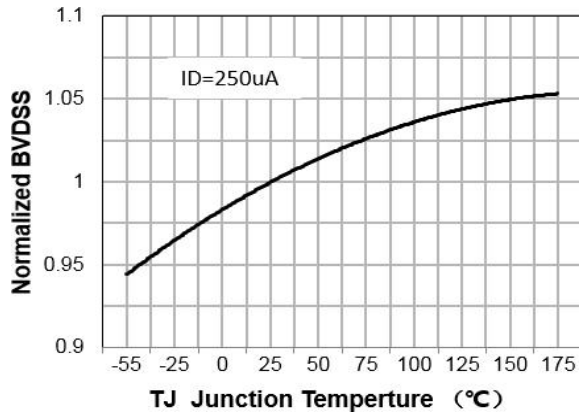
#### Notes:

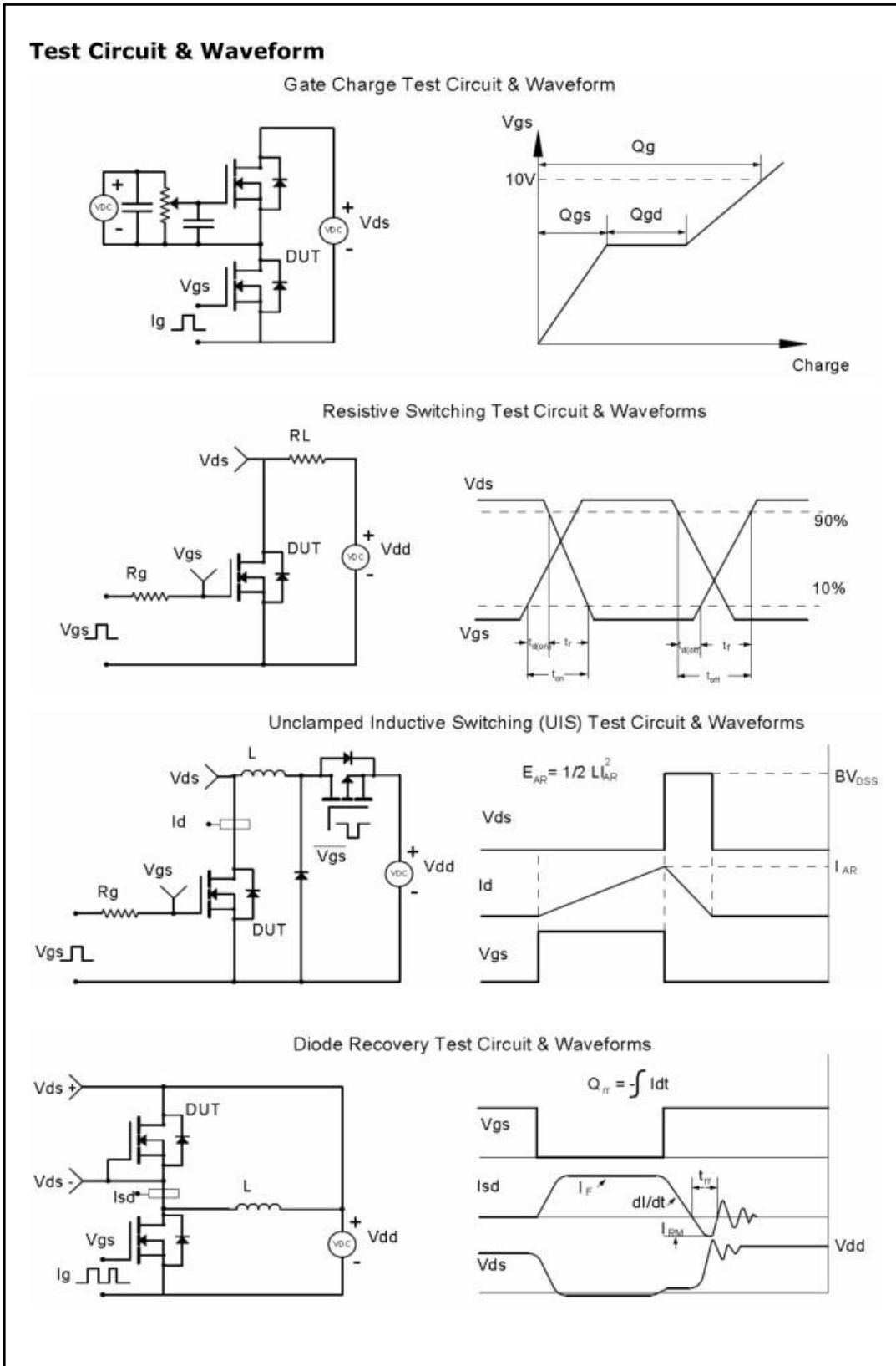
- 1.Repetitive Rating : Pulse width limited by maximum junction temperature
- 2.L = 0.5 mH, I<sub>AS</sub> = 28 A, V<sub>DD</sub> = 10V, R<sub>G</sub> = 25 Ω, Starting T<sub>J</sub> = 25°C
- 3.I<sub>SD</sub> ≤ 40A, di/dt = 100A/us, V<sub>DD</sub> ≤ BVDSS, Starting T<sub>J</sub> = 25°C
- 4.Pulse Test : Pulse width ≤ 300us, Duty cycle ≤ 2%
- 5.Essentially independent of operating temperature



Typical Electronic and Thermal Characteristics

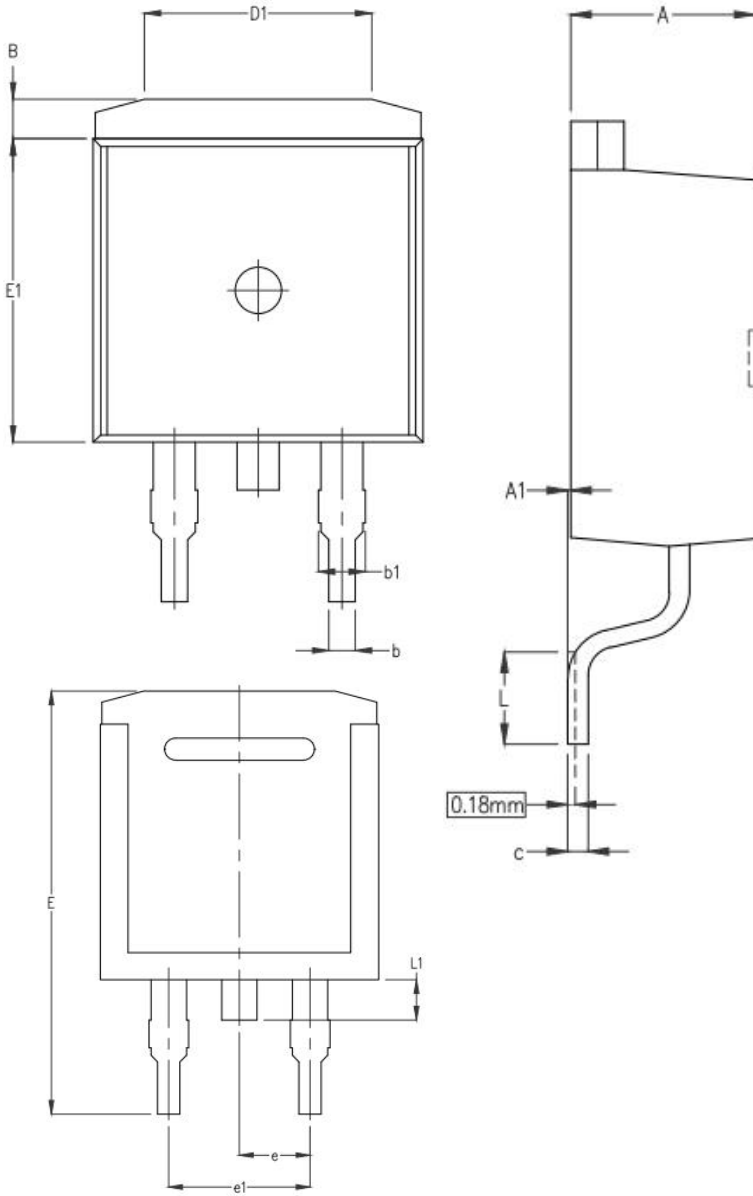








### TO-263 Package Information



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	4.45	4.50	4.55
A1	0	0.07	0.15
B	1.08	1.20	1.32
b	0.80TYP.		
b1	1.24	1.27	1.30
c	0.48	0.50	0.52
D	9.95	10.00	10.05
D1	6.89REF.		
E	15.09	15.24	15.39
E1	9.15	9.20	9.25
e	2.51	2.54	2.57
e1	5.05	5.08	5.11
L	2.29	2.54	2.79