

# GSM2911

## 20V P-CH Enhancement Mode MOSFET

### Product Description

GSM2911, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent  $R_{DS(ON)}$ , low gate charge. These devices are particularly suited for low voltage power management, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

### Features

- P-Channel  
-20V/-4.5A,  $R_{DS(ON)} = 96m\Omega @ V_{GS} = -4.5V$   
-20V/-3.8A,  $R_{DS(ON)} = 128m\Omega @ V_{GS} = -2.5V$   
-20V/-2.5A,  $R_{DS(ON)} = 180m\Omega @ V_{GS} = -1.8V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN2X2-6L package design

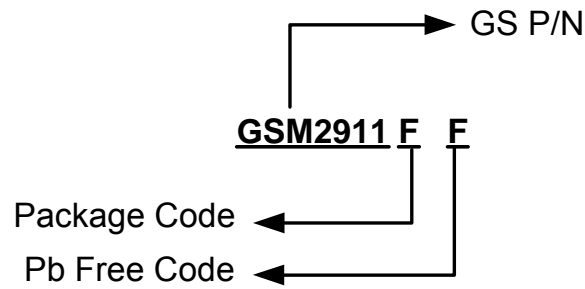
### Applications

- Portable Equipment
- Battery Powered System
- Load Switch

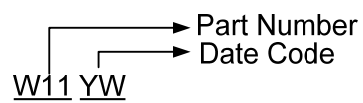
### Packages & Pin Assignments

GSM2911FF (DFN2X2-6L)		
Pin	Symbol	Description
1	S1	Source 1
2	G1	Gate 1
3	D2	Drain 2
4	S2	Source 2
5	G2	Gate 2
6	D1	Drain1

## Ordering Information



## Marking Information



Part Number	Package	Part Marking	Quantity Reel
GSM2911FF	DFN2X2-6L	W11YW	3000 PCS

## Absolute Maximum Ratings

T<sub>A</sub>=25°C Unless otherwise noted

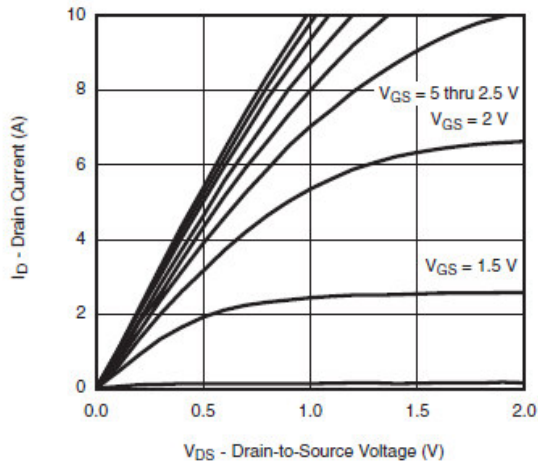
Symbol	Parameter	Typical	Unit
V <sub>DSS</sub>	Drain-Source Voltage	-20	V
V <sub>GSS</sub>	Gate –Source Voltage	±12	V
I <sub>D</sub>	Continuous Drain Current (T <sub>J</sub> =150°C)	T <sub>A</sub> =25°C	-4.5
		T <sub>A</sub> =70°C	-3.8
I <sub>DM</sub>	Pulsed Drain Current	-12	A
I <sub>S</sub>	Continuous Source Current (Diode Conduction)	-1.6	A
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	6.5
		T <sub>A</sub> =70°C	4.2
T <sub>J</sub>	Operating Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55/150	°C
R <sub>θJA</sub>	Thermal Resistance-Junction to Ambient	120	°C/W

## Electrical Characteristics

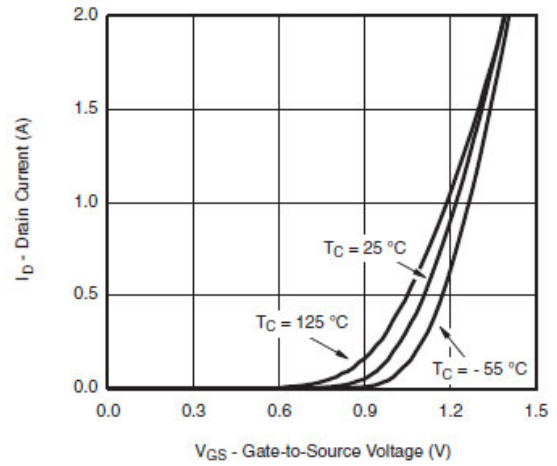
(T<sub>A</sub>=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-20			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-0.3		-0.8	
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = -16V, V <sub>GS</sub> =0V			-1	uA
		V <sub>DS</sub> = -16V, V <sub>GS</sub> =0V , T <sub>J</sub> =85°C			-30	
I <sub>D(on)</sub>	On-State Drain Current	V <sub>DS</sub> ≤ -5V, V <sub>GS</sub> = -4.5V	-8			A
		V <sub>DS</sub> ≤ -5V, V <sub>GS</sub> = -2.5V	-3			
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-4.5A		86	96	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-3.8A		114	128	
		V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-2.5A		150	180	
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =-5V, I <sub>D</sub> =-2.8A		6.5		S
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =-1.25A, V <sub>GS</sub> =0V		-0.75	-1.3	V
<b>Dynamic</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> ≡-3.5A		5	10	nC
Q <sub>gs</sub>	Gate-Source Charge			0.85		
Q <sub>gd</sub>	Gate-Drain Charge			1.5		
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V f=1MHz		375		pF
C <sub>OSS</sub>	Output Capacitance			80		
C <sub>RSS</sub>	Reverse Transfer Capacitance			60		
td(on)	Turn-On Time	V <sub>DD</sub> =-10V, R <sub>L</sub> =2.85Ω I <sub>D</sub> ≡-3.5A, V <sub>GEN</sub> =-4.5V R <sub>G</sub> =1.0Ω		15	25	ns
t <sub>r</sub>				36	60	
td(off)	Turn-Off Time			25	50	
t <sub>f</sub>				15	25	

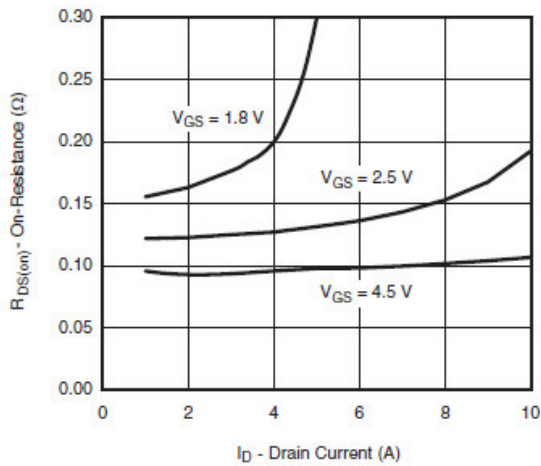
## Typical Performance Characteristics



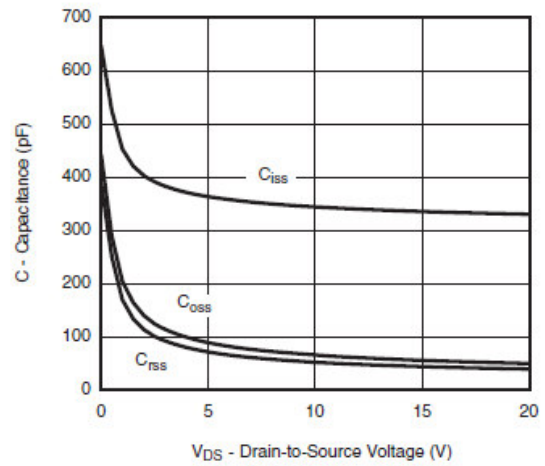
Output Characteristics



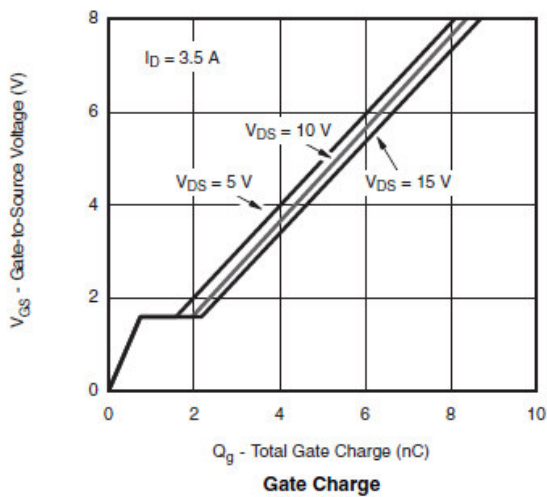
Transfer Characteristics



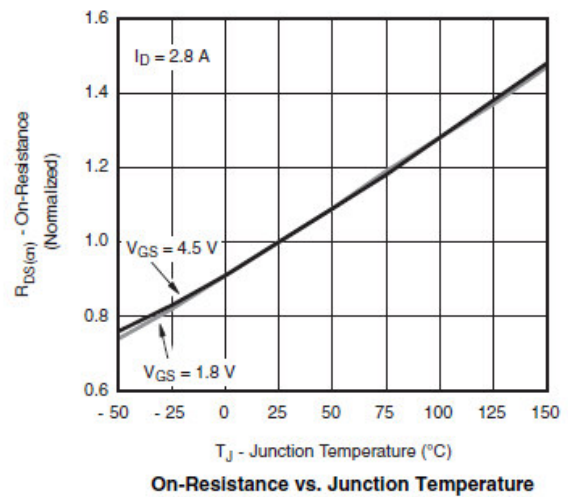
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

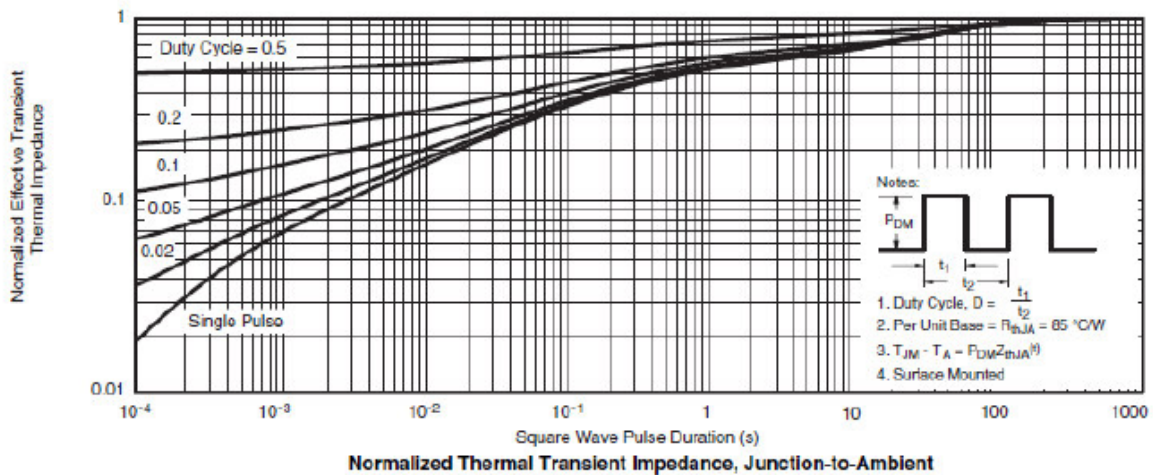
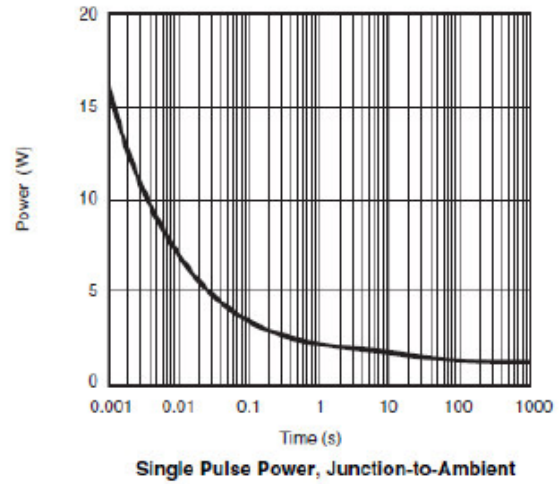
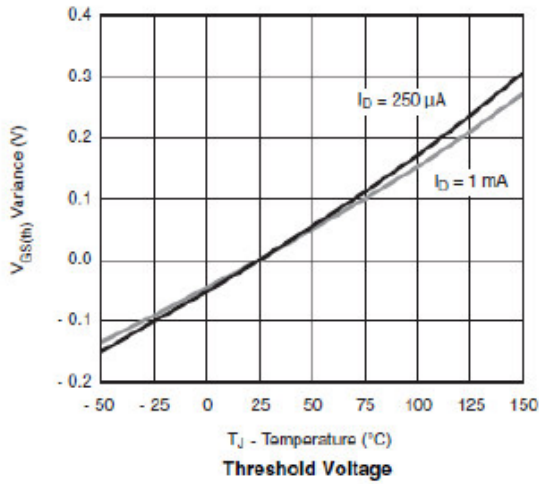
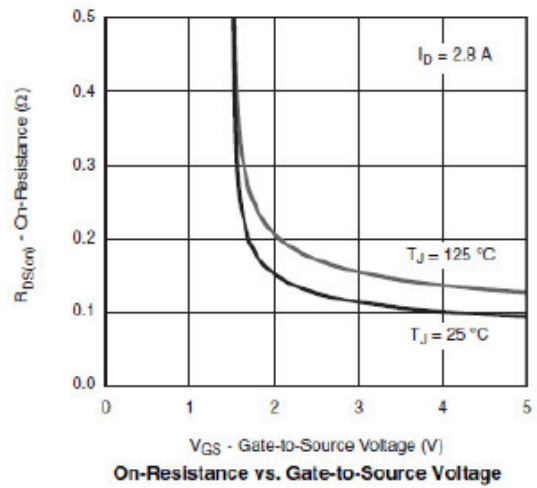
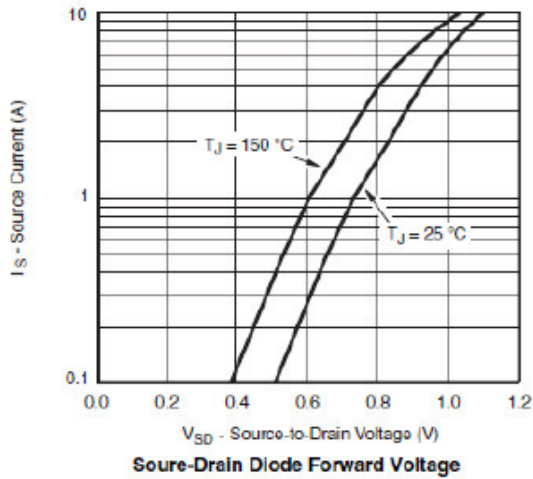


Gate Charge

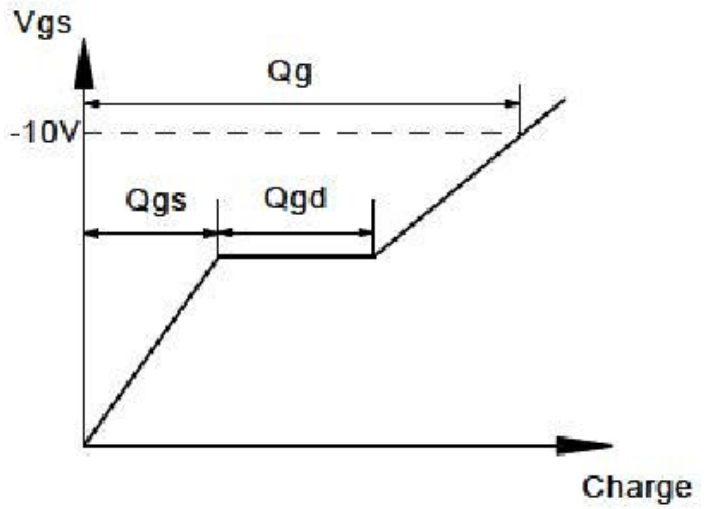
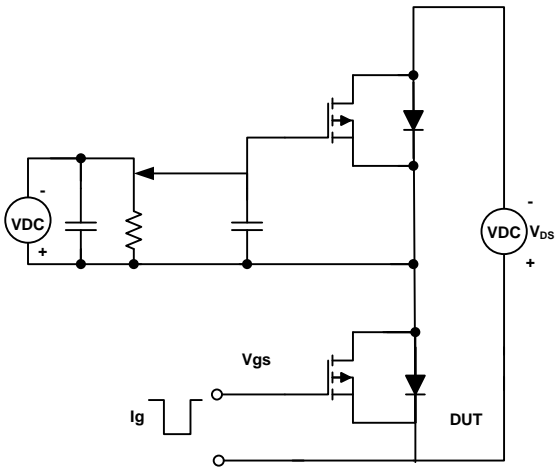


On-Resistance vs. Junction Temperature

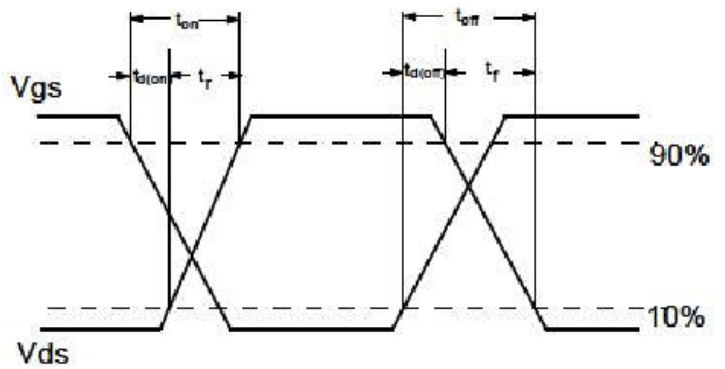
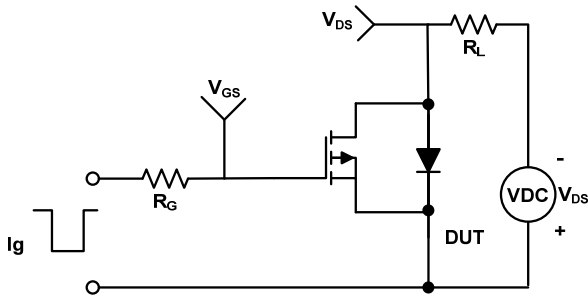
## Typical Performance Characteristics(continue)



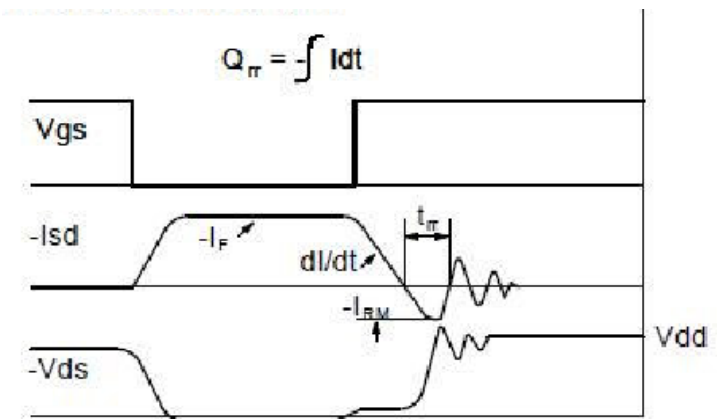
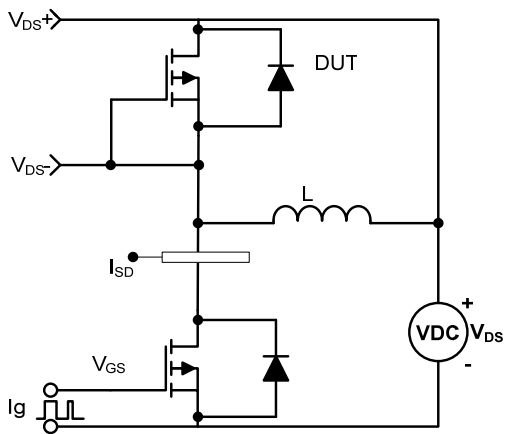
## Typical Performance Characteristics(continue)



Resistive Switching Test Circuit & Waveforms

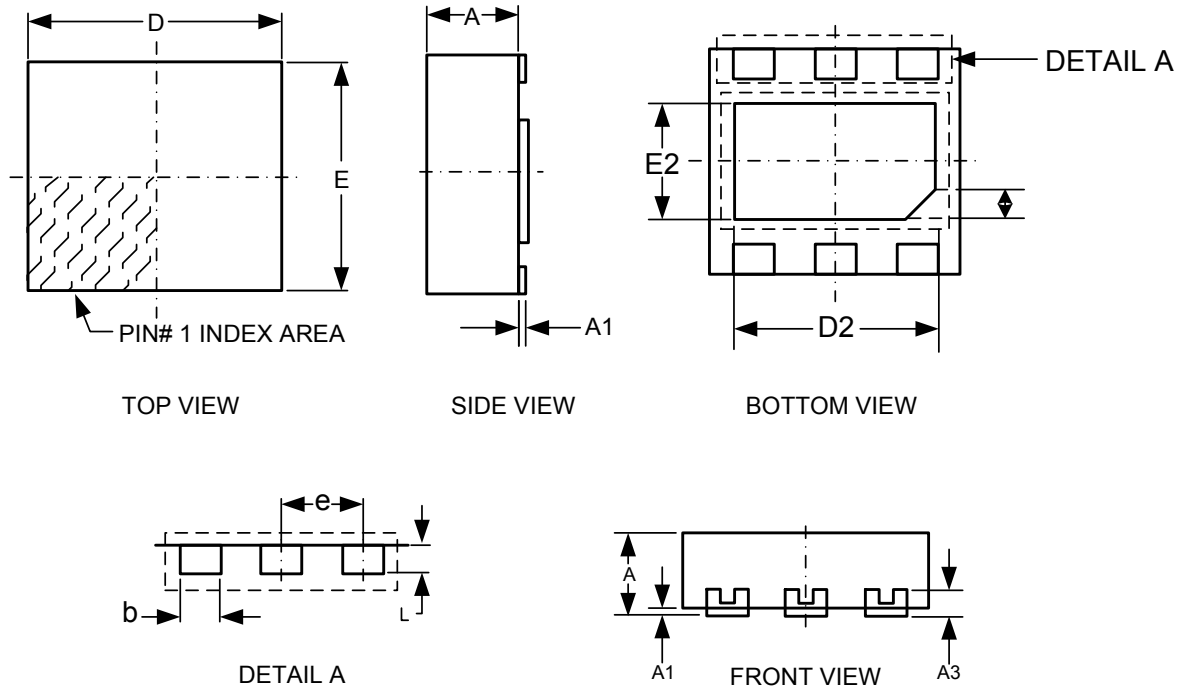


Unclamped Inductive Switching Test Circuit & Waveforms



## Package Dimension

### DFN2x2-6L







Dimensions						
SYMBOL	Millimeters			Inches		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.75	0.80	0.028	0.030	0.031
A1	-	0.02	0.05	-	0.001	0.002
A3	0.18	0.20	0.25	0.007	0.008	0.010
b	0.25	0.30	0.35	0.010	0.012	0.014
D	1.95	2.00	2.05	0.077	0.079	0.081
D2	1.00	-	1.45	0.039	-	0.057
e	0.65 BSC			0.026 BSC		
E	1.95	2.00	2.05	0.077	0.079	0.081
E2	0.50	-	0.85	0.020	-	0.033
L	0.25	0.30	0.40	0.010	0.012	0.016
h	0.1	0.15	0.2	0.004	0.006	0.008



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