

# GSM2318A

## 40V N-Channel Enhancement Mode MOSFET

### Product Description

GSM2318A, N-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.

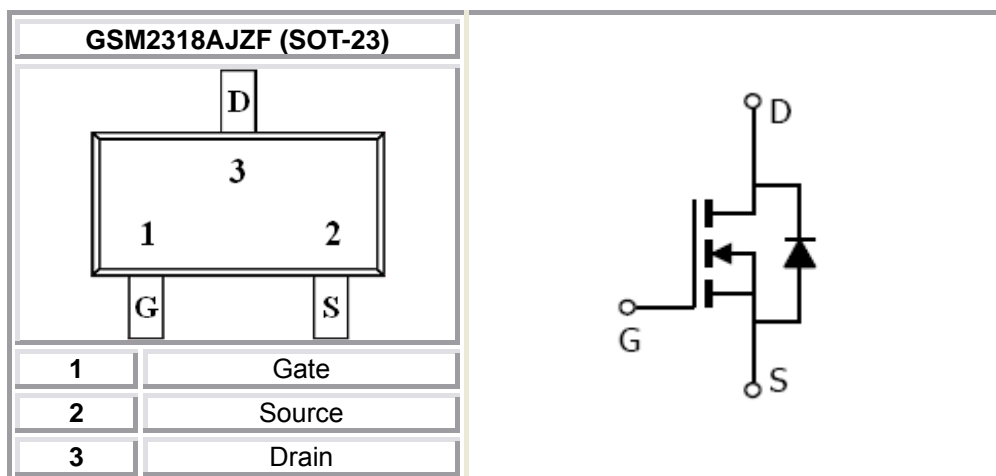
### Features

- 40V/2.6A,  $R_{DS(ON)}=68m\Omega@V_{GS}=10V$
- 40V/2.2A,  $R_{DS(ON)}=88m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design

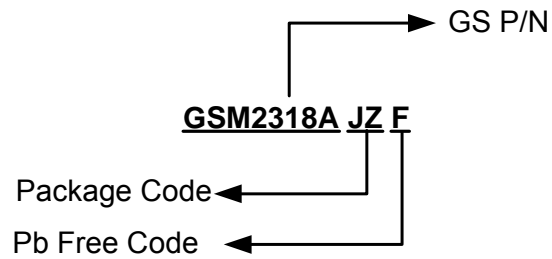
### Applications

- Portable Equipment
- Battery Powered System
- Net Working System

### Packages & Pin Assignments

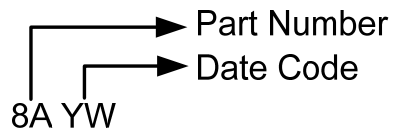


## Ordering Information



Part Number	Package	Quantity Reel
GSM2318AJZF	SOT-23	3000 PCS

## Marking Information



## Absolute Maximum Ratings

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

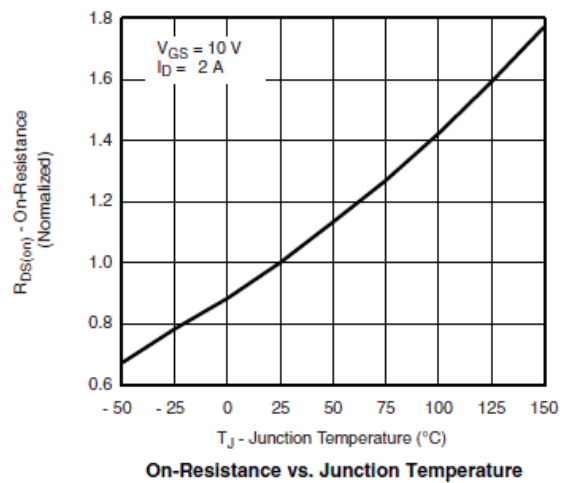
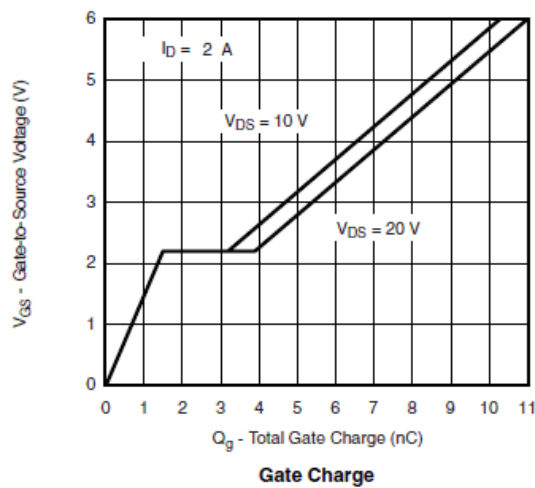
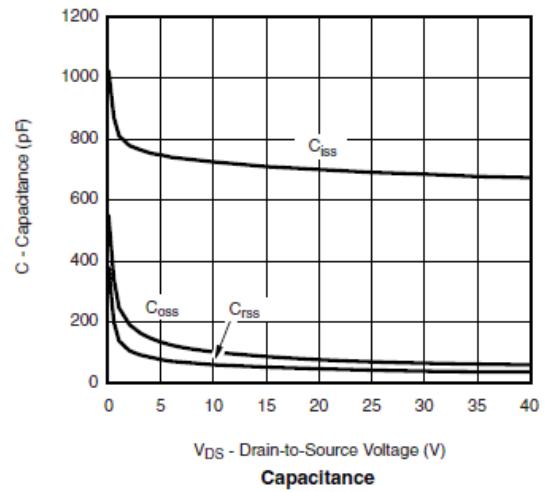
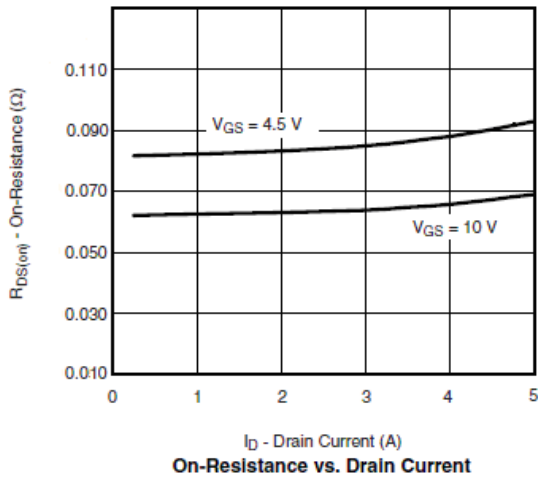
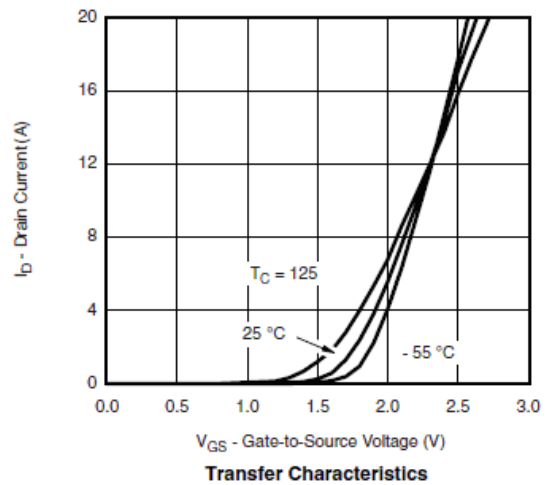
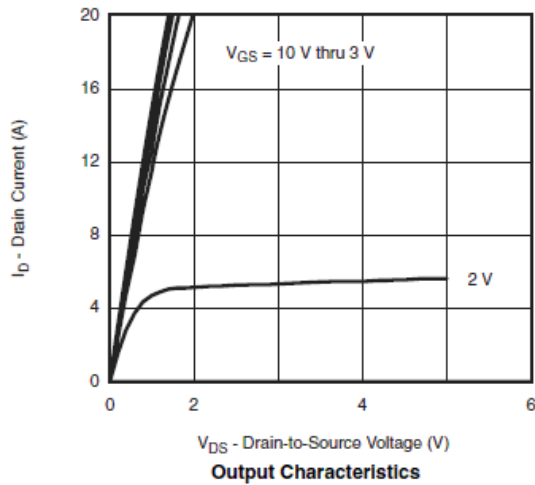
Symbol	Parameter	Typical	Unit	
V <sub>DSS</sub>	Drain-Source Voltage	40	V	
V <sub>GSS</sub>	Gate -Source Voltage	±20	V	
I <sub>D</sub>	Continuous Drain Current(T <sub>J</sub> =150°C)	T <sub>A</sub> =25°C	2.6	A
		T <sub>A</sub> =70°C	2.2	
I <sub>DM</sub>	Pulsed Drain Current	10	A	
I <sub>S</sub>	Continuous Source Current(Diode Conduction)	1.6	A	
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	1.25	W
		T <sub>A</sub> =70°C	0.8	
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

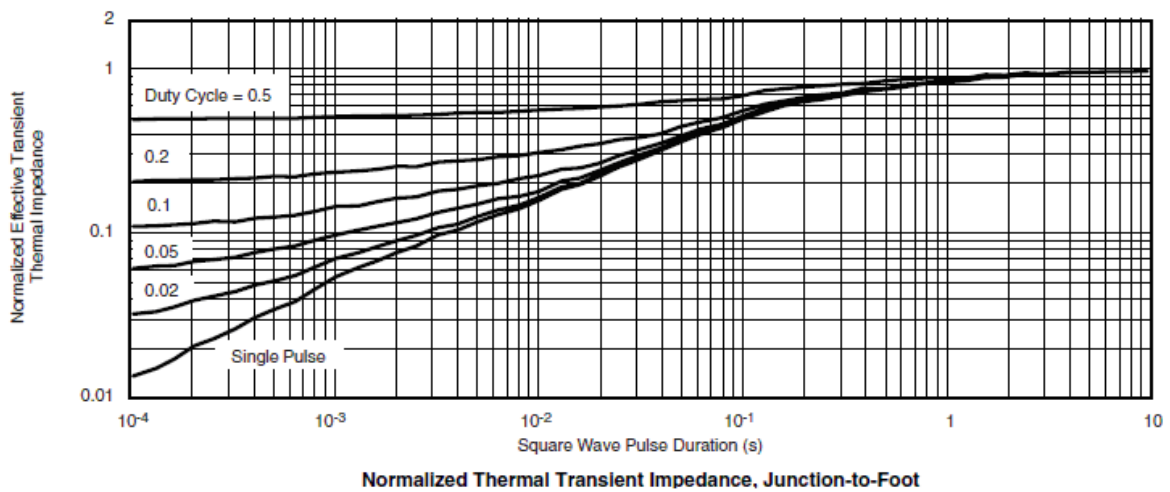
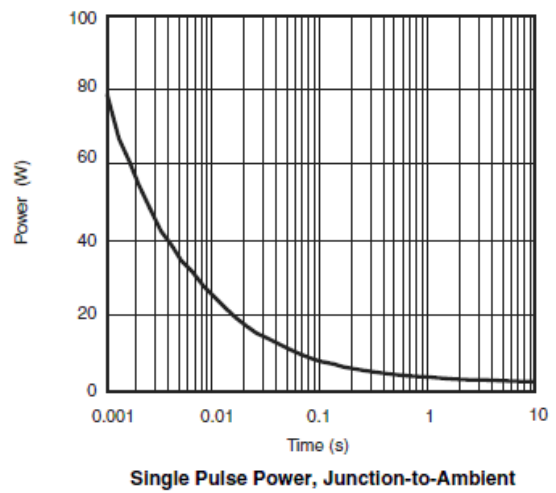
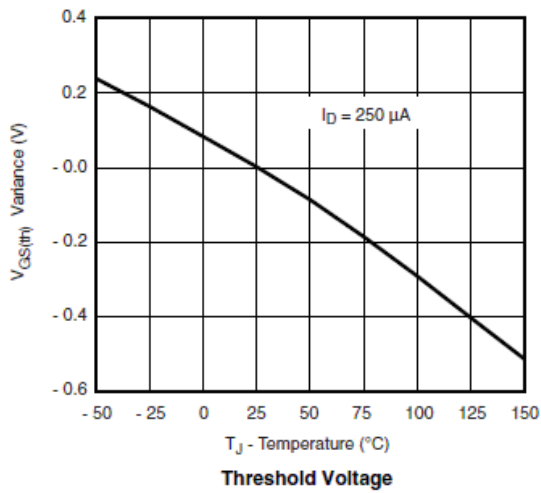
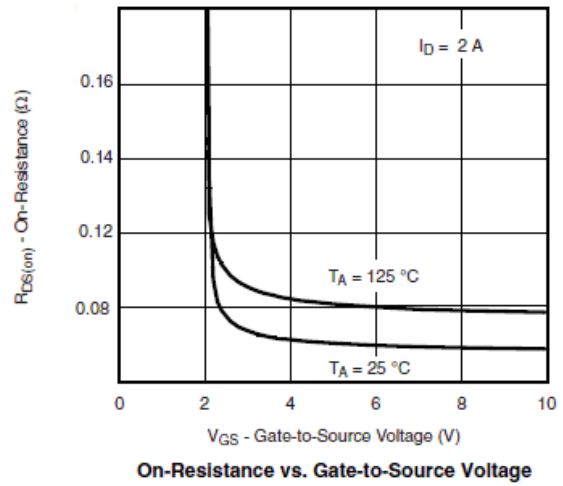
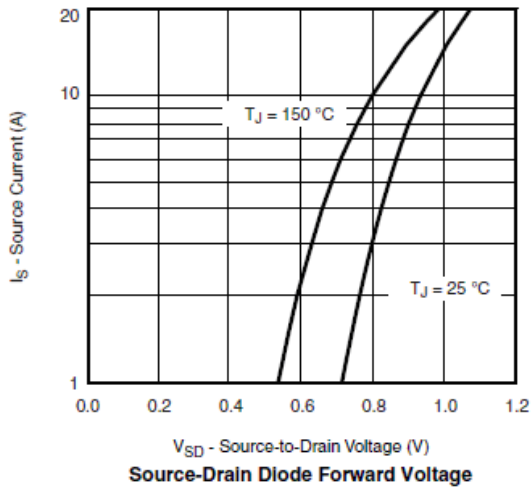
( $T_A=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
<b>Static</b>							
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	40			V	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		2.0		
$I_{GSS}$	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA	
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=40V, V_{GS}=0V$			1	uA	
		$V_{DS}=40V, V_{GS}=0V, T_J=85^\circ\text{C}$			10		
$I_{D(on)}$	On-State Drain Current	$V_{DS}\geq 5V, V_{GS}=10V$	10			A	
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=2.6A$		58	68	m $\Omega$	
		$V_{GS}=4.5V, I_D=2.2A$		80	88		
$g_{fs}$	Forward Transconductance	$V_{DS}=10V, I_D=2.0A$		16		S	
$V_{SD}$	Diode Forward Voltage	$I_S=1.5A, V_{GS}=0V$		0.85	1.2	V	
<b>Dynamic</b>							
$C_{iss}$	Input Capacitance	$V_{DS}=20V, V_{GS}=0V, f=1\text{MHz}$		650		pF	
$C_{oss}$	Output Capacitance			75			
$C_{rss}$	Reverse Transfer Capacitance			45			
$Q_g$	Total Gate Charge	$V_{DS}=20V, V_{GS}=4.5V, I_D=2A$		10	15	nC	
$Q_{gs}$	Gate-Source Charge			2			
$Q_{gd}$	Gate-Drain Charge			2.5			
$t_{d(on)}$	Turn-On Time	$V_{DD}=15V, R_L=15\Omega, I_D=1A, V_{GEN}=10V, R_G=6\Omega$		8	15	ns	
$t_r$				12	20		
$t_{d(off)}$			Turn-Off Time		28		40
$t_f$					8		15

## Typical Performance Characteristics

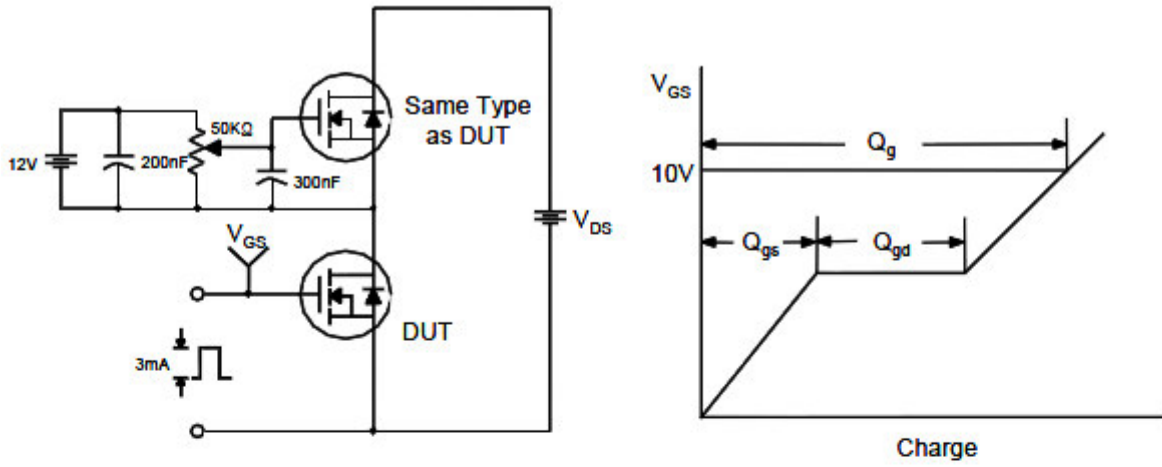


## Typical Performance Characteristics (continue)

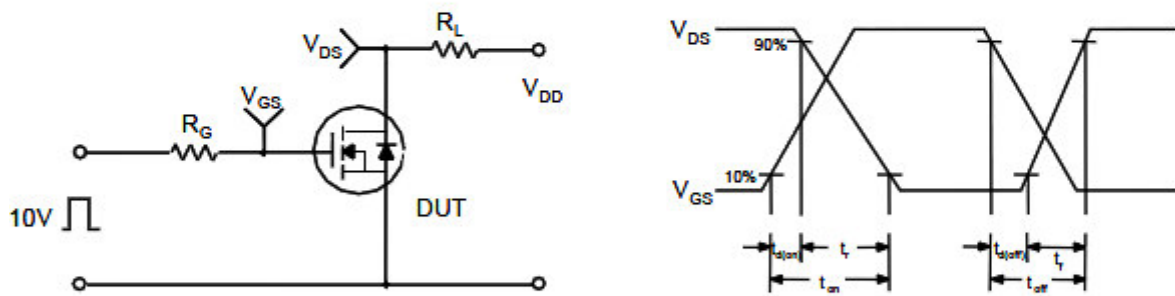


## Typical Characteristics

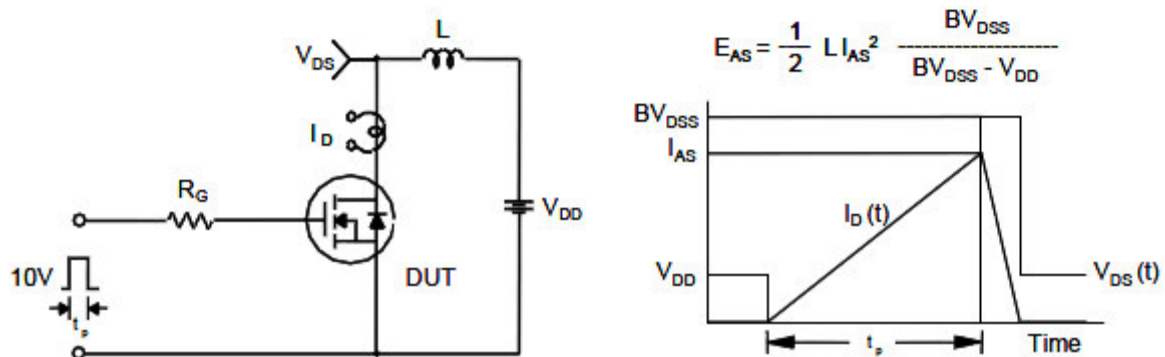
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

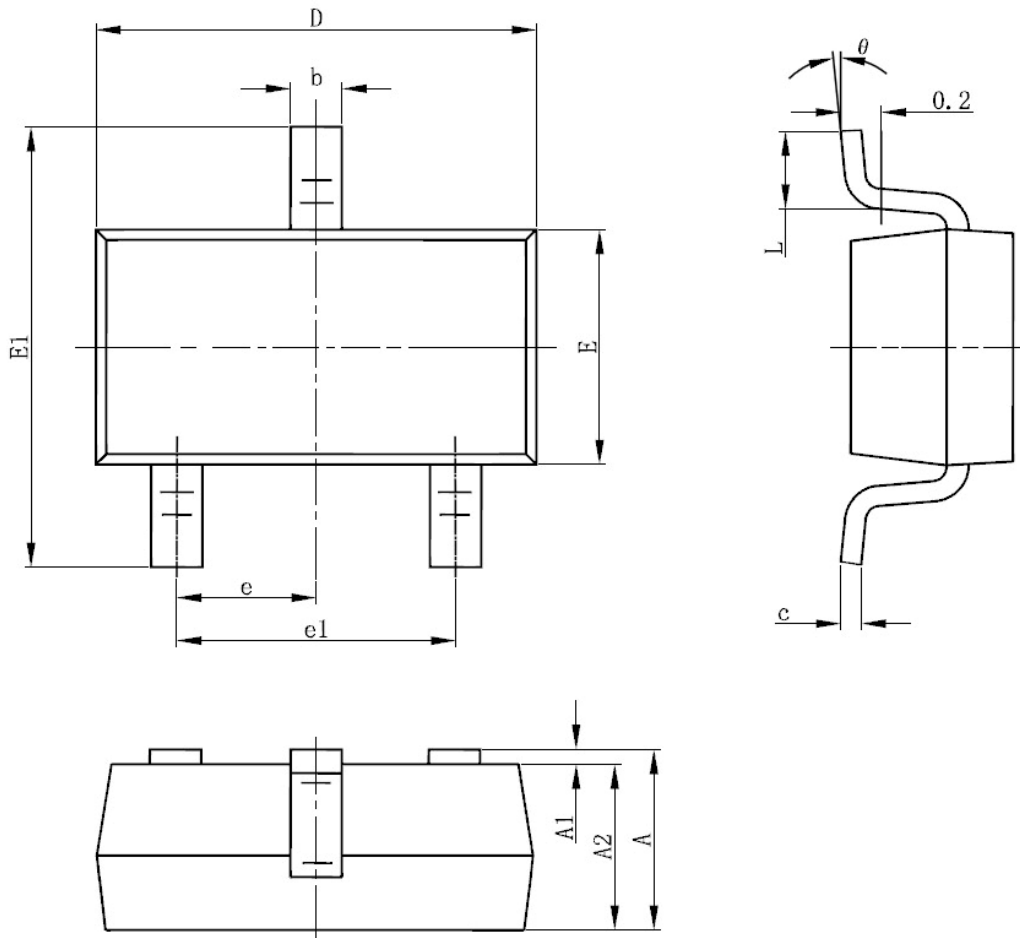


Unclamped Inductive Switching Test Circuit & Waveforms



## Package Dimension

### SOT-23-3L PLASTIC PACKAGE







#### Dimensions

SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.9	1.2	0.035	0.043
A1	0	0.1	0	0.004
A2	0.9	1.1	0.035	0.039
b	0.3	0.5	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.8	3	0.110	0.118
E	1.2	1.4	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950 (TYP)		0.037 (TYP)	
e1	1.8	2	0.071	0.079
L	0.55REF		0.022REF	
L1	0.3	0.5	0.012	0.020
Q	0°	8°	0°	6°





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