

# GSM4953S

## 30V P-Channel Enhancement Mode MOSFET

### Product Description

GSM4953S, 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, and low in-line power loss are needed in commercial industrial surface mount applications.

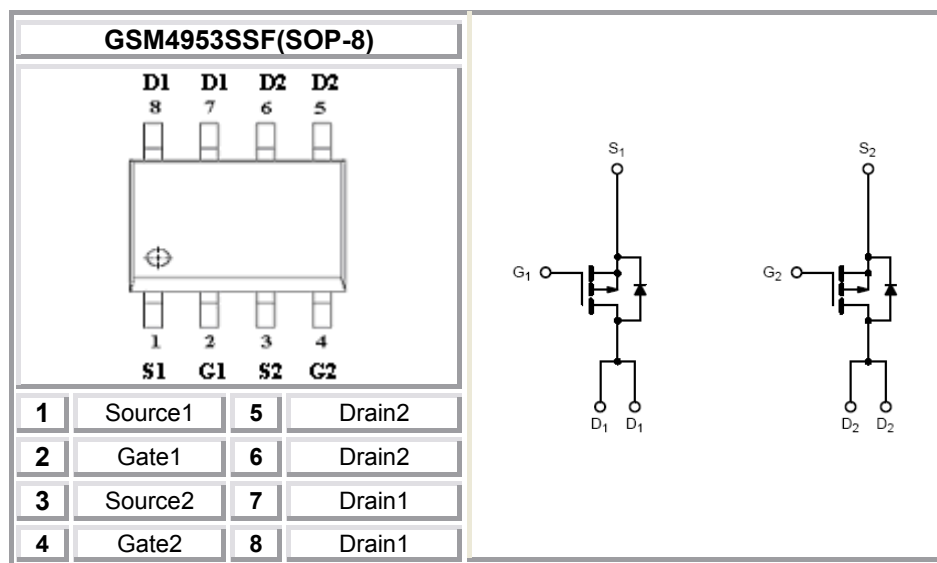
### Features

- $-30V/-5.4A, R_{DS(ON)}=52m\Omega@V_{GS}=-10V$
- $-30V/-4.2A, R_{DS(ON)}=76m\Omega@V_{GS}=-4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- SOP-8P package design

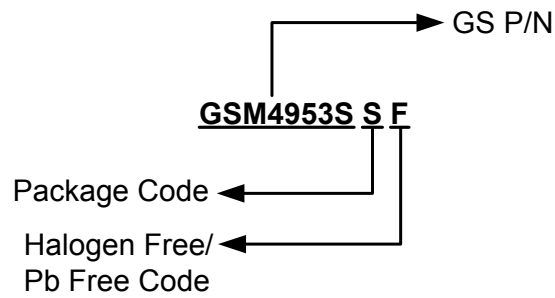
### Applications

- LED Display
- Load Switch
- CCFL Inverter
- Power Management in Notebook Computer

### Packages & Pin Assignments

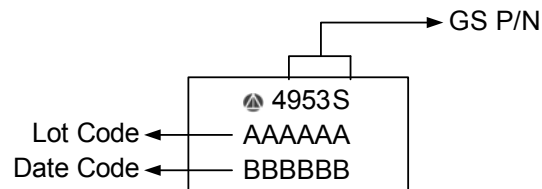


## Ordering Information



Part Number	Package	Quantity Reel
GSM4953SSF	SOP-8	3000 PCS

## Marking Information



## Absolute Maximum Ratings

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

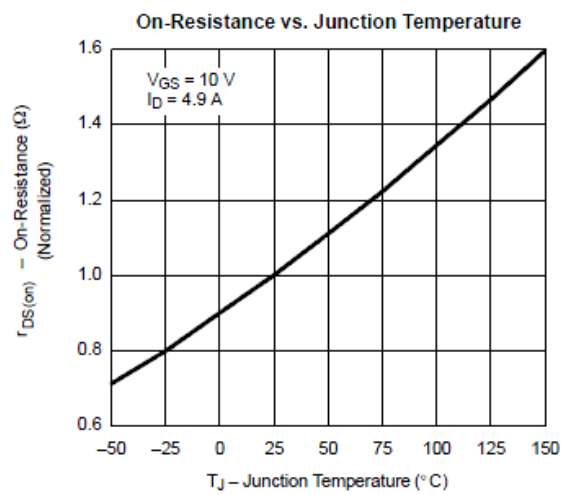
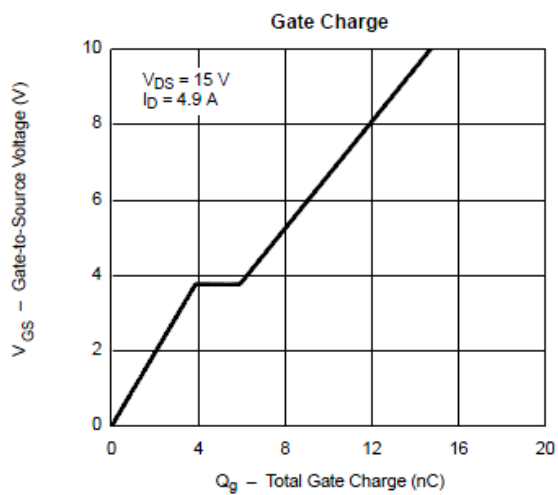
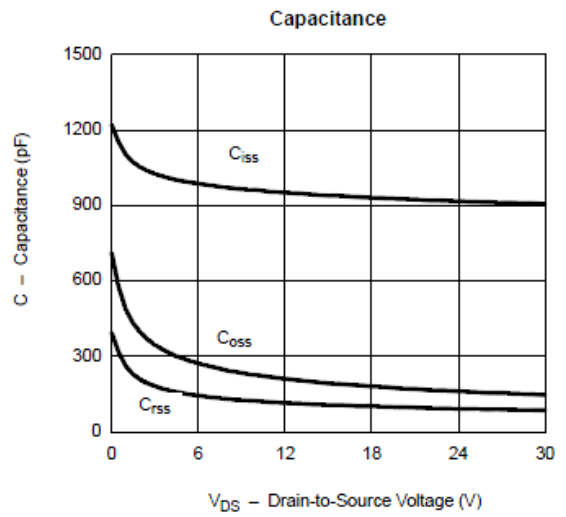
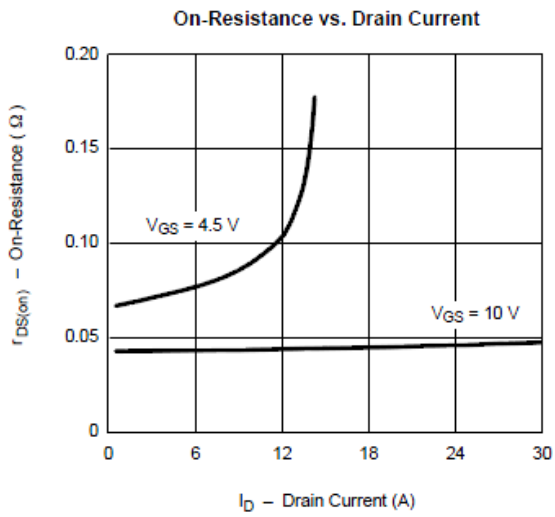
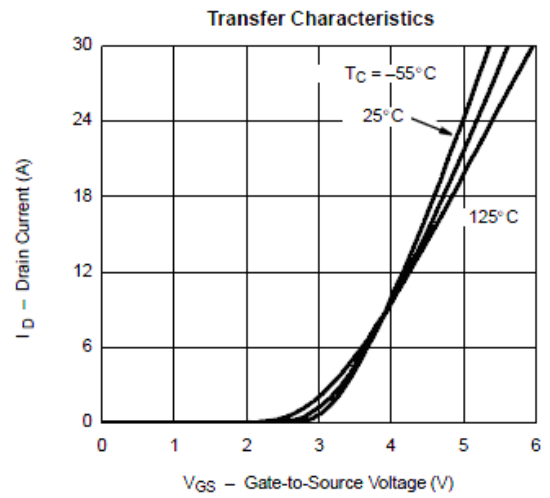
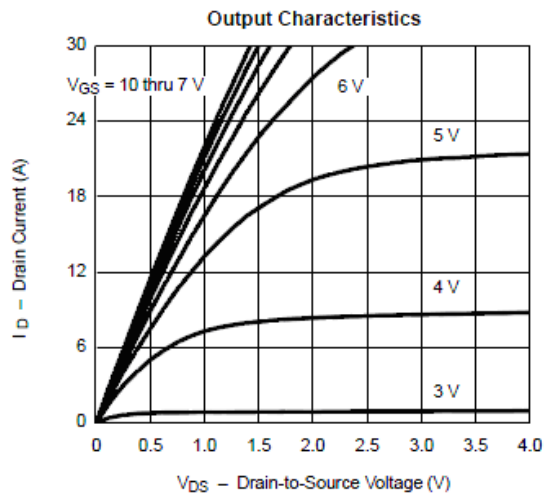
Symbol	Parameter	Typical	Unit	
V <sub>DSS</sub>	Drain-Source Voltage	-30	V	
V <sub>GSS</sub>	Gate –Source Voltage	±20	V	
I <sub>D</sub>	Continuous Drain Current(T <sub>J</sub> =150°C)	T <sub>A</sub> =25°C	-5.4	A
		T <sub>A</sub> =70°C	-4.2	
I <sub>DM</sub>	Pulsed Drain Current	-30	A	
I <sub>S</sub>	Continuous Source Current(Diode Conduction)	-1.7	A	
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	2.8	W
		T <sub>A</sub> =70°C	1.8	
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	62.5	°C/W	

## Electrical Characteristics

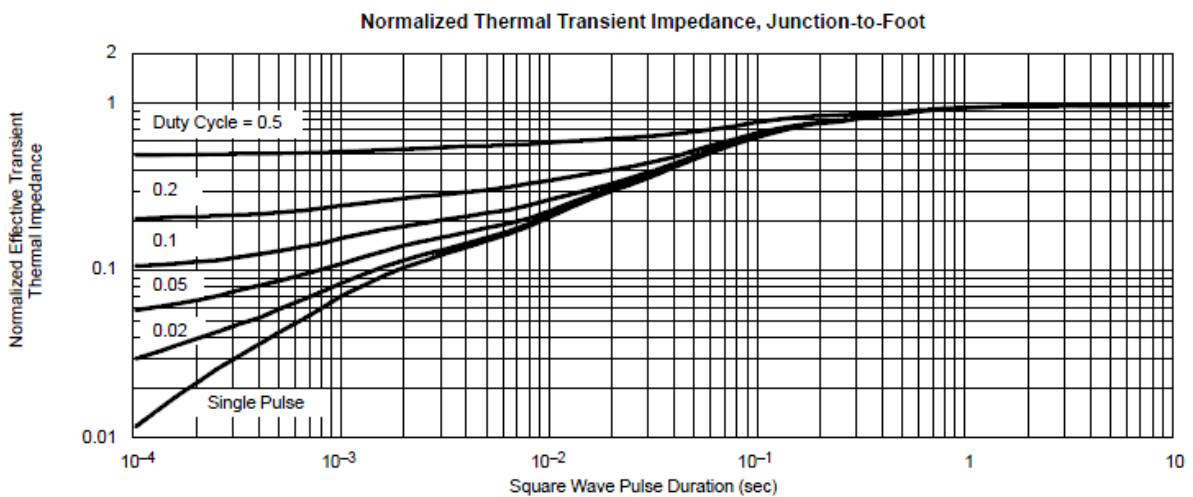
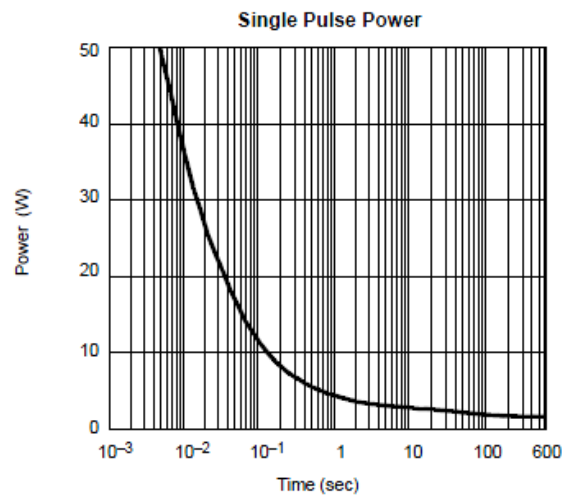
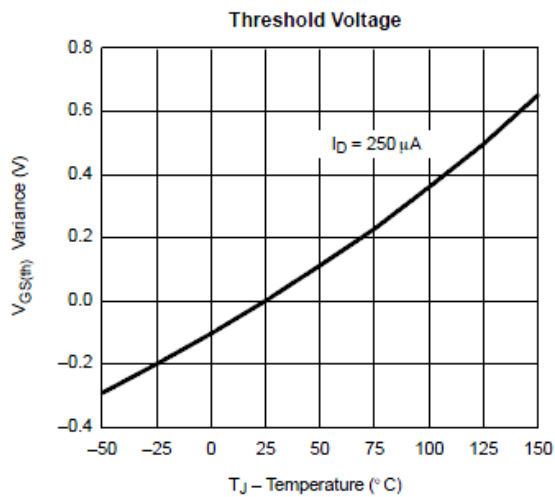
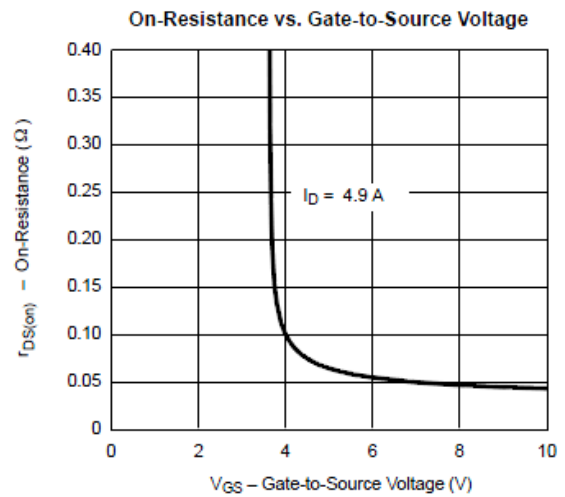
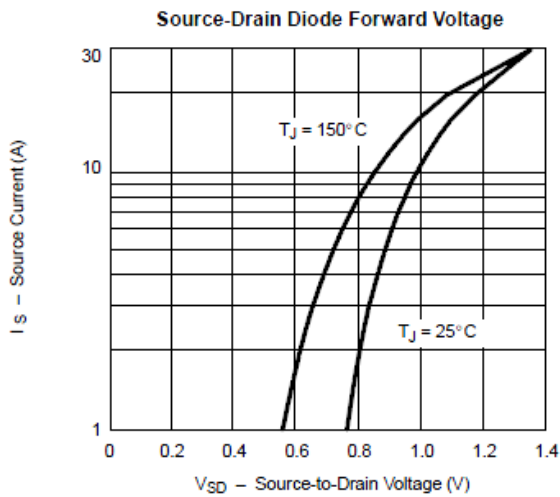
(T<sub>A</sub>=25°C unless otherwise noted)

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	-30			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-1.0		-2.5	
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V			-1	uA
		V <sub>DS</sub> =-24V, 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> =-10V	25			A
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =-10V, I <sub>D</sub> =-5.4A		35	52	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-4.2A		55	76	
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =-10V, I <sub>D</sub> =-4.9A		10		S
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =-1.7A, V <sub>GS</sub> =0V		0.8	1.3	V
<b>Dynamic</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V f=1MHz		500		pF
C <sub>oss</sub>	Output Capacitance			100		
C <sub>rss</sub>	Reverse Transfer Capacitance			55		
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V I <sub>D</sub> =-5.0A		10	18	nC
Q <sub>gs</sub>	Gate-Source Charge			1.6		
Q <sub>gd</sub>	Gate-Drain Charge			3.0		
t <sub>d(on)</sub>	Turn-On Time	V <sub>DD</sub> =-15V, R <sub>L</sub> =15Ω I <sub>D</sub> =-1.0A, V <sub>GEN</sub> =-10V R <sub>G</sub> =6Ω		8	18	ns
T <sub>r</sub>				8	18	
t <sub>d(off)</sub>	Turn-Off Time			25	50	
T <sub>f</sub>				25	35	

## Typical Performance Characteristics

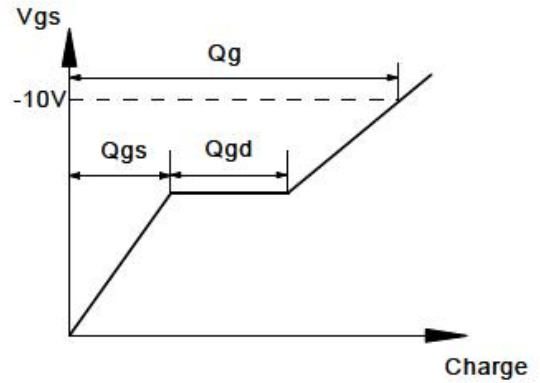
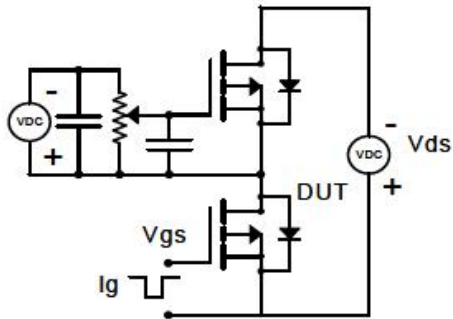


## Typical Performance Characteristics (continue)

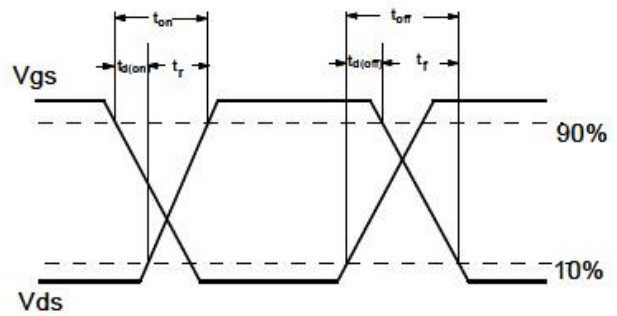
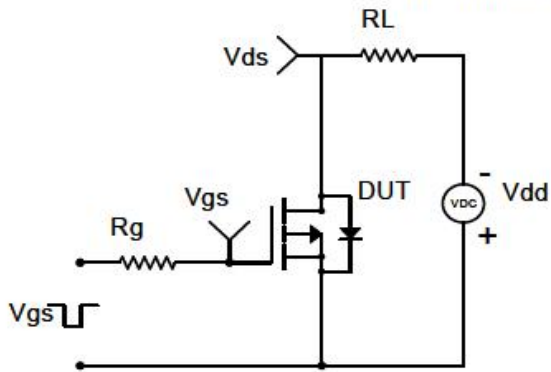


## Typical Characteristics

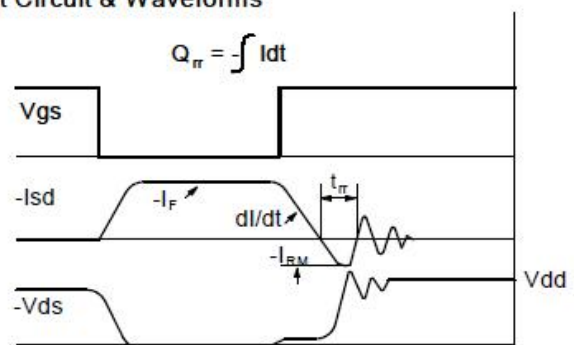
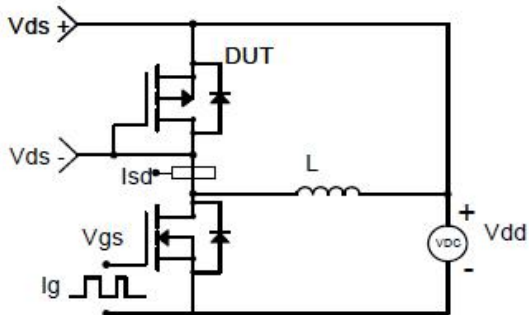
### Gate Charge Test Circuit & Waveform



### Resistive Switching Test Circuit & Waveforms

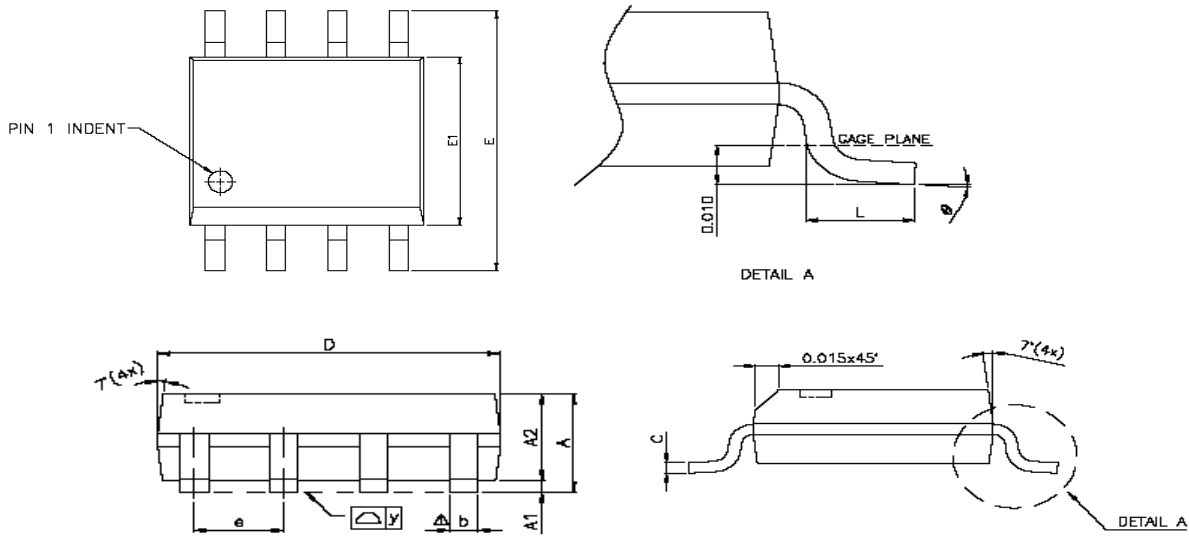


### Diode Recovery Test Circuit & Waveforms



Package Dimension

# SOP-8P PLASTIC PACKAGE







Dimensions						
SYMBOL	Millimeters			Inches		
	MIN	NOM	MAX	MIN	NOM	MAX
<b>A</b>	1.47	1.60	1.73	0.058	0.063	0.068
<b>A1</b>	0.10	-	0.25	0.004	-	0.010
<b>A2</b>	-	1.45	-	-	0.057	-
<b>b</b>	0.33	0.41	0.51	0.013	0.016	0.020
<b>C</b>	0.19	0.20	0.25	0.0075	0.008	0.0098
<b>D</b>	4.80	4.85	4.95	0.189	0.191	0.195
<b>E</b>	5.80	6.00	6.20	0.228	0.236	0.244
<b>E1</b>	3.80	3.90	4.00	0.150	0.154	0.157
<b>e</b>	-	1.27	-	-	0.050	-
<b>L</b>	0.38	0.71	1.27	0.015	0.028	0.050
<b>Δy</b>	-	-	0.076	-	-	0.003
<b>θ</b>	0°	-	8°	0°	-	8°


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## CONTACT US

GS Headquarter	
	4F.,No.43-1,Lane11,Sec.6,Minquan E.Rd Neihu District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

Wu-Xi Branch	
	No.21 Changjiang Rd., WND, Wuxi, Jiangsu, China (INFO. &. TECH. Science Park Building A 210 Room)
	86-510-85217051
	86-510-85211238
	sales_cn@gs-power.com

RD Division	
	824 Bolton Drive Milpitas. CA. 95035
	1-408-457-0587