

# GSM1034

## 30V N-Channel Enhancement Mode MOSFET

### Product Description

GSM1034, 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 low in-line power loss are needed in commercial industrial surface mount applications.

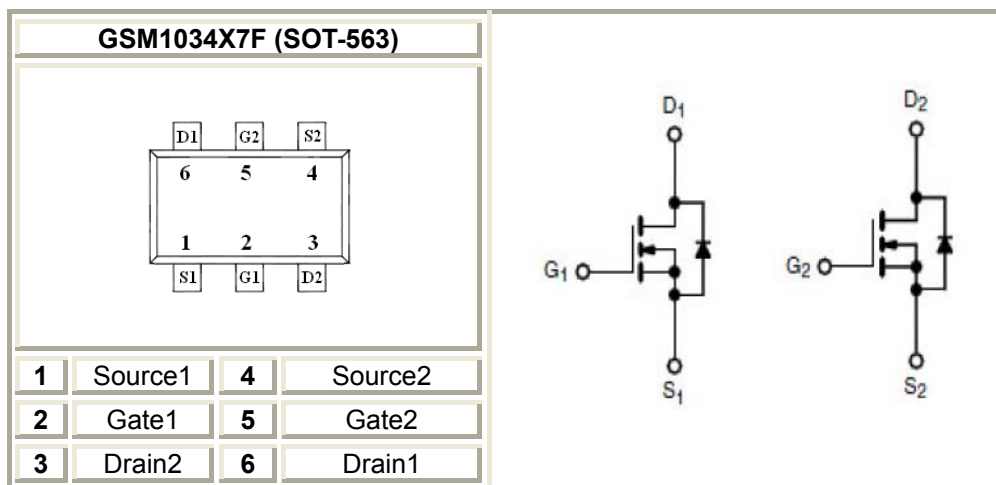
### Features

- 30V/0.6A,  $R_{DS(ON)}=440m\Omega@V_{GS}=4.5V$
- 30V/0.5A,  $R_{DS(ON)}=500m\Omega@V_{GS}=2.5V$
- 30V/0.4A,  $R_{DS(ON)}=720m\Omega@V_{GS}=1.8V$
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- Low Battery Voltage Operation
- SOT-563 package design

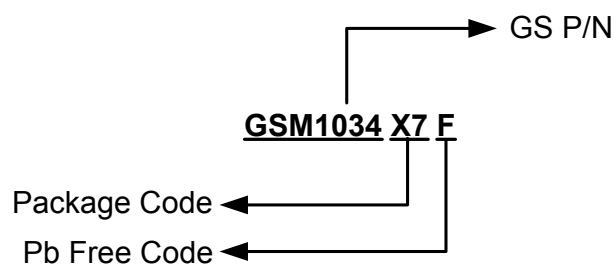
### Applications

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Smart Phones, Pagers

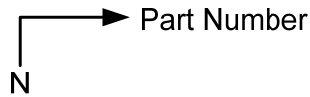
### Packages & Pin Assignments



### Ordering Information



## Marking Information



Part Number	Package	Part Marking
GSM1034X7F	SOT-563	N

## Absolute Maximum Ratings

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

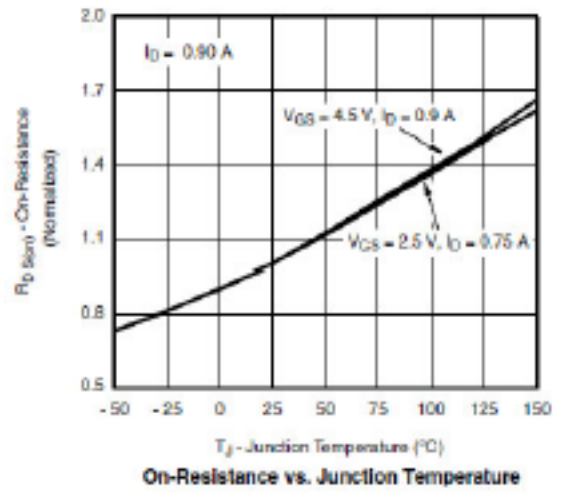
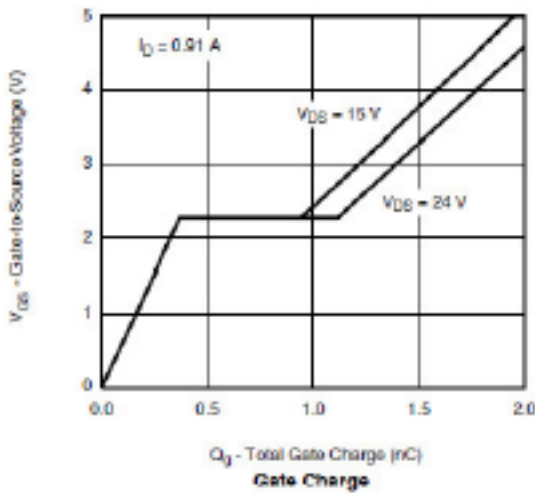
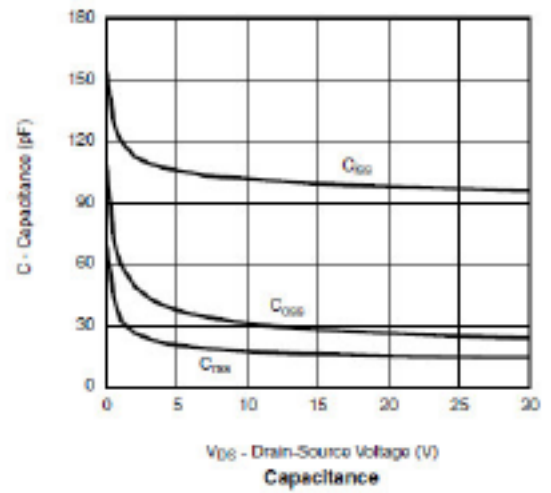
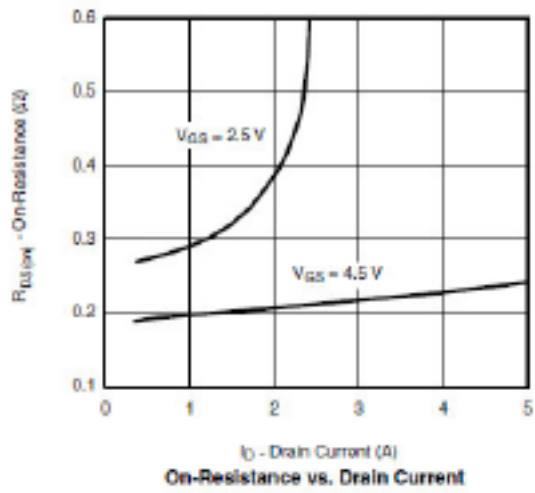
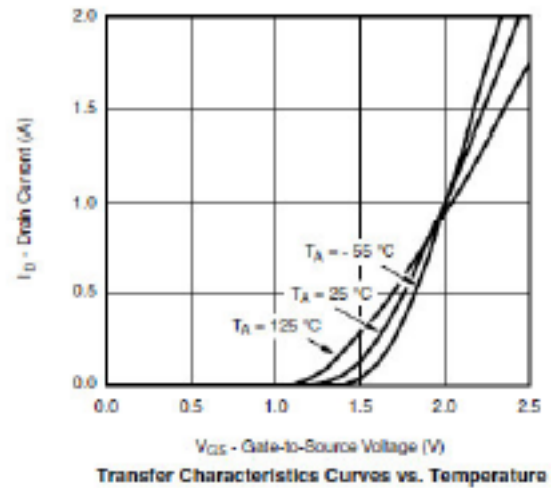
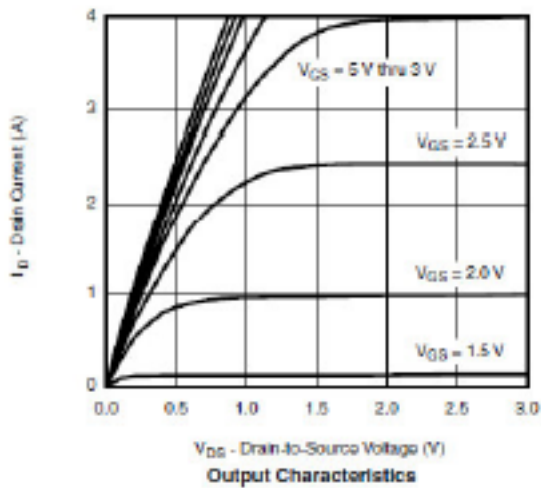
Symbol	Parameter	Typical	Unit	
V <sub>DSS</sub>	Drain-Source Voltage	30	V	
V <sub>GSS</sub>	Gate –Source Voltage	±12	V	
I <sub>D</sub>	Continuous Drain Current(T <sub>J</sub> =150°C)	T <sub>A</sub> =25°C	0.7	A
		T <sub>A</sub> =70°C	0.4	
I <sub>DM</sub>	Pulsed Drain Current	1.0	A	
I <sub>S</sub>	Continuous Source Current(Diode Conduction)	0.3	A	
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	0.27	W
		T <sub>A</sub> =70°C	0.16	
T <sub>J</sub>	Operating Junction Temperature	-55/150	°C	
T <sub>STG</sub>	Storage Temperature Range	-55/150	°C	

## Electrical Characteristics

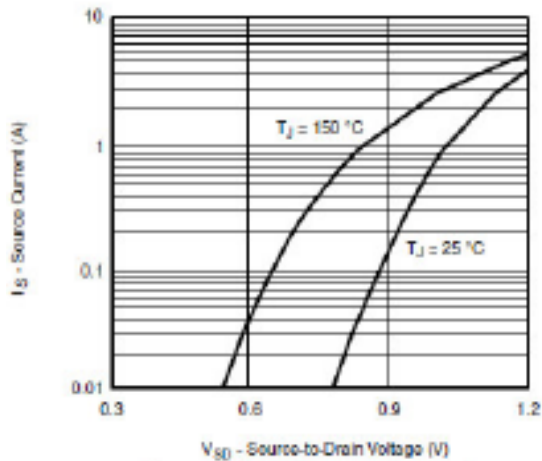
( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Symbol	Parameter	Conditions	Min	TYP	Max	Unit
<b>Static</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5		1.0	
$I_{GSS}$	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 12V$			$\pm 100$	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$			1	uA
		$V_{DS}=24V, V_{GS}=0V, T_J=85^{\circ}\text{C}$			5	
$I_{D(on)}$	On-State Drain Current	$V_{DS}\geq 5V, V_{GS}=4.5V$	0.7			A
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=4.5V, I_D=0.6A$		352	440	m $\Omega$
		$V_{GS}=2.5V, I_D=0.5A$		432	500	
		$V_{GS}=1.8V, I_D=0.4A$		620	720	
$g_{FS}$	Forward Transconductance	$V_{DS}=10V, I_D=0.4A$		1		S
$V_{SD}$	Diode Forward Voltage	$I_S=0.15A, V_{GS}=0V$		0.6	1.2	V
<b>Dynamic</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=15V, V_{GS}=0V$ $f=1\text{MHz}$		85		pF
$C_{oss}$	Output Capacitance			25		
$C_{rSS}$	Reverse Transfer Capacitance			15		
$Q_g$	Total Gate Charge	$V_{DS}=15V,$ $V_{GS}=4.5V, I_D=0.6A$		1.4	1.8	nC
$Q_{gs}$	Gate-Source Charge			0.3		
$Q_{gd}$	Gate-Drain Charge			0.6		
$t_{d(on)}$	Turn-On Time	$V_{DD}=15V,$ $R_L=20\Omega, I_D=0.5A$ $V_{GEN}=4.5V, R_G=1\Omega$		15	25	ns
$t_r$				25	45	
$t_{d(off)}$	Turn-Off Time			15	25	
$t_f$				10	20	

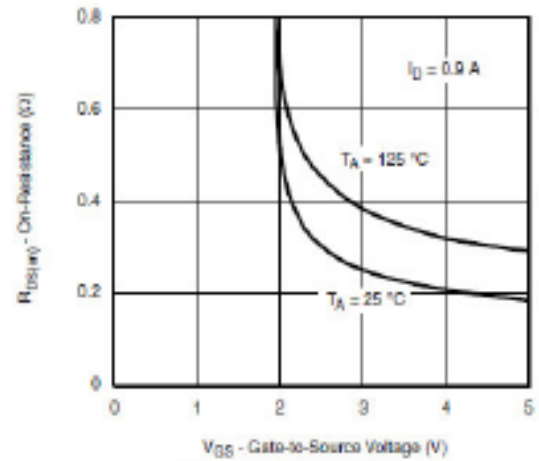
## Typical Performance Characteristics



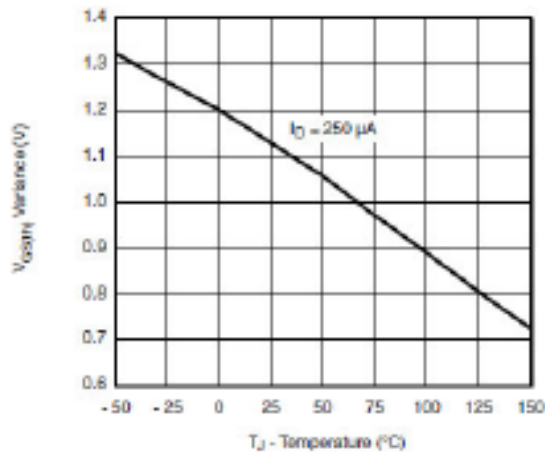
## Typical Performance Characteristics (continue)



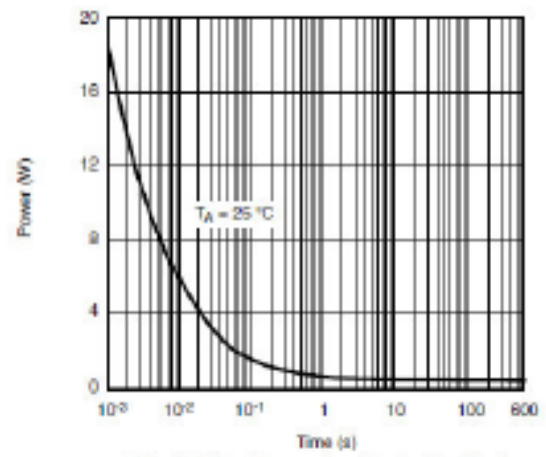
Forward Diode Voltage vs. Temperature



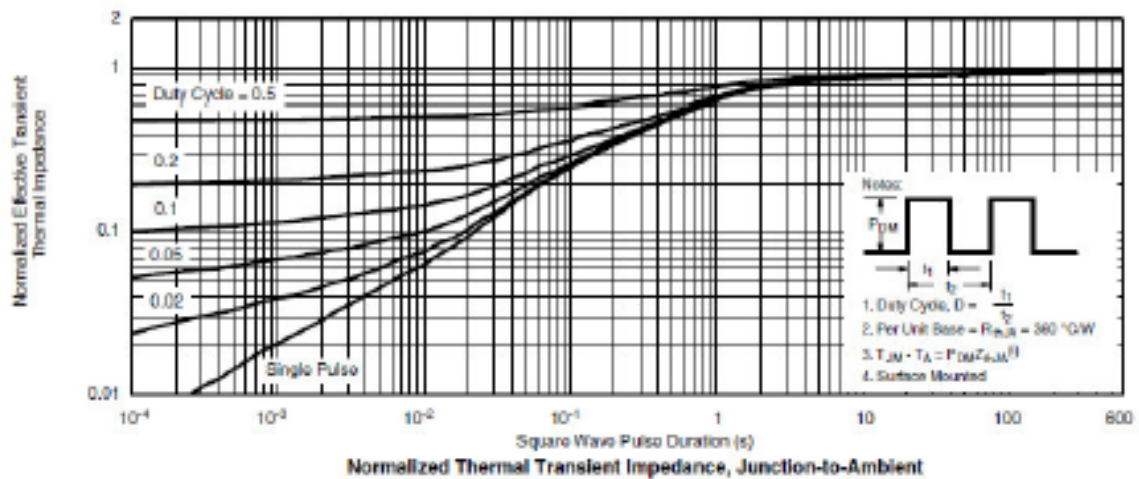
$R_{DS(on)}$  vs.  $V_{GS}$  vs. Temperature



Threshold Voltage



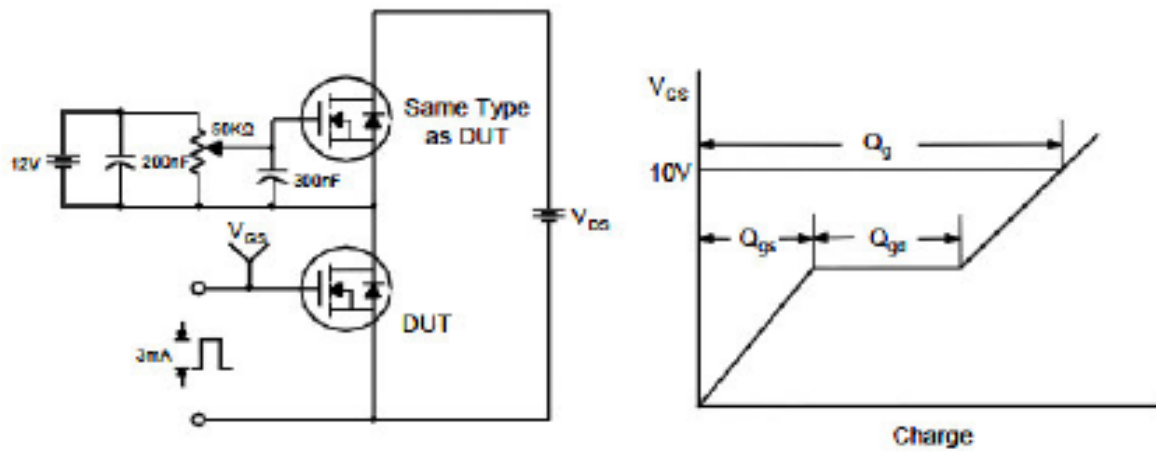
Single Pulse Power, Junction-to-Ambient



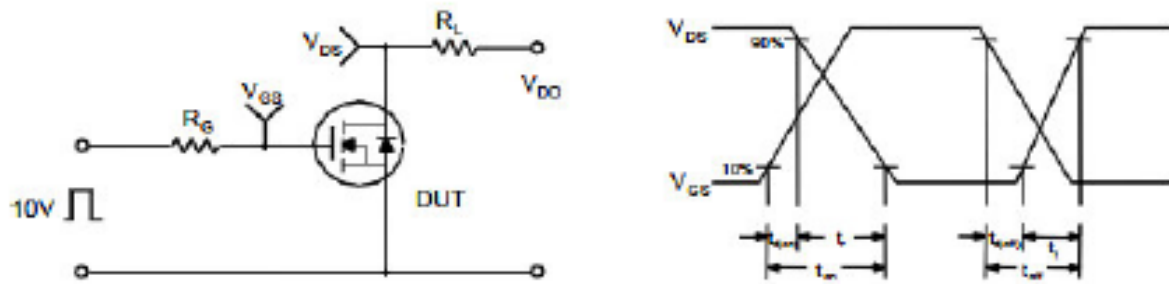
Normalized Thermal Transient Impedance, Junction-to-Ambient

## Typical Characteristics

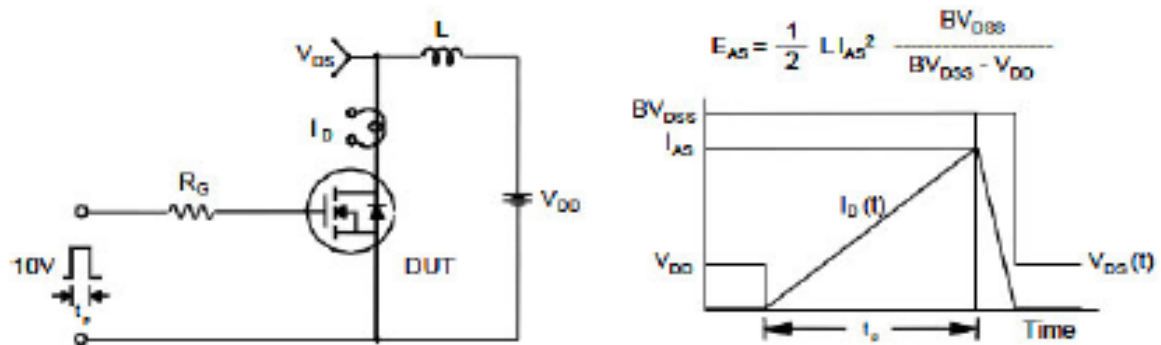
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

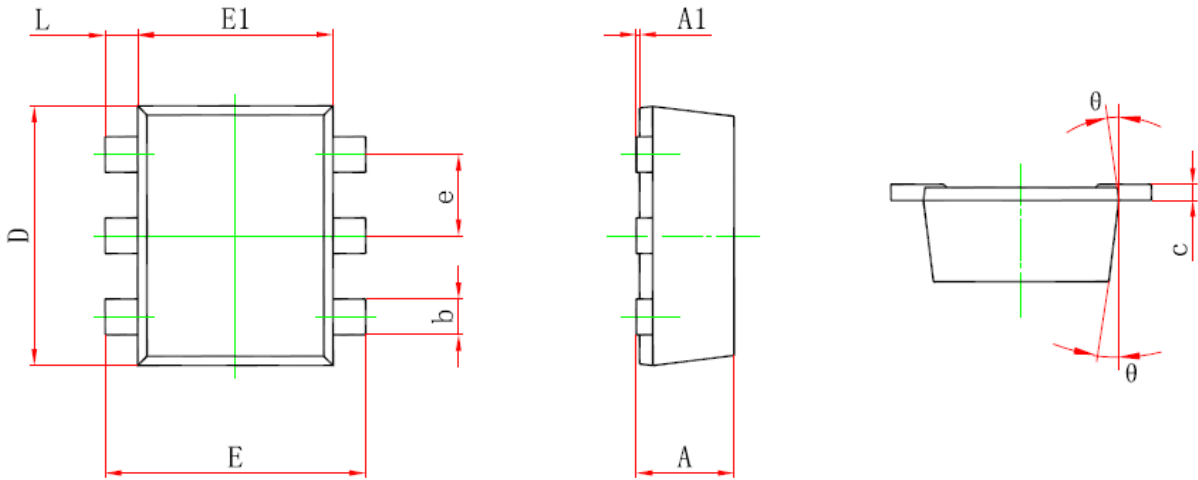


Unclamped Inductive Switching Test Circuit & Waveforms



## Package Dimension

### SOT-563







Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
θ	7° REF		7° REF	



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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