

GSE0524R

Ultra Low Capacitance 4-Channel ESD Protection Array

Product Description

The GSE0524R is ultra low capacitance TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

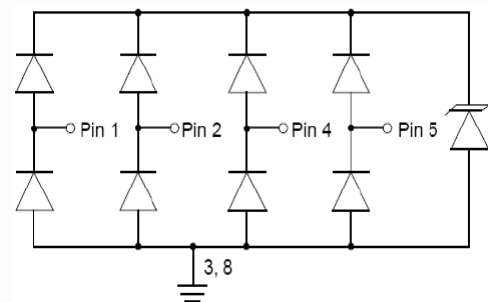
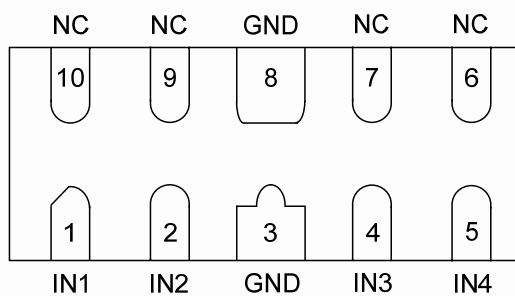
Features

- Flow-through design
- Protects four I/O lines (Data line)
- Stand-off voltage : 5.0V
- Max. peak pulse power : $P_{PP} = 50W$ at $t_P = 8/20\mu s$
- Low capacitance : 0.3pF typical (I/O to I/O)
- IEC 61000-4-2, level 4 (ESD), $> \pm 15KV$ (air); $> \pm 8KV$ (contact)
- RoHS Compliant, 100%Pb & Halogen Free
- Device Meets MSL 1 Requirements

Applications

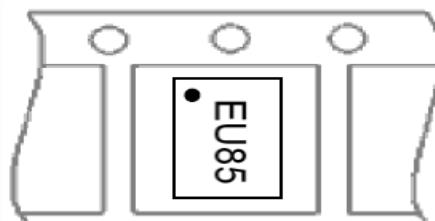
- High Definition Multi-Media Interface Protection
- USB 3.0 Power and Data Line Protection
- Monitors and Flat Panel Displays Notebook Computers
- Video Line Protection & Base Stations
- HDSDI, IDSDI Secondary IC Side Protection
- Microcontroller Input Protection
- LCD and camera modules
- 10/100/1000 Ethernet

Packages & Pin Assignments

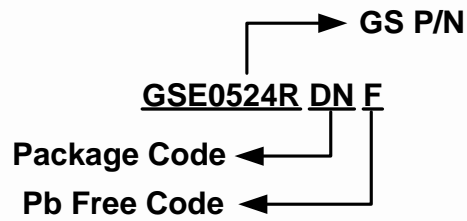


Top View (DFN-10)

Marking Information



Ordering Information



Part Number	Package	Quantity
GSE0524RDNF	DFN-10	3000 PCS

Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

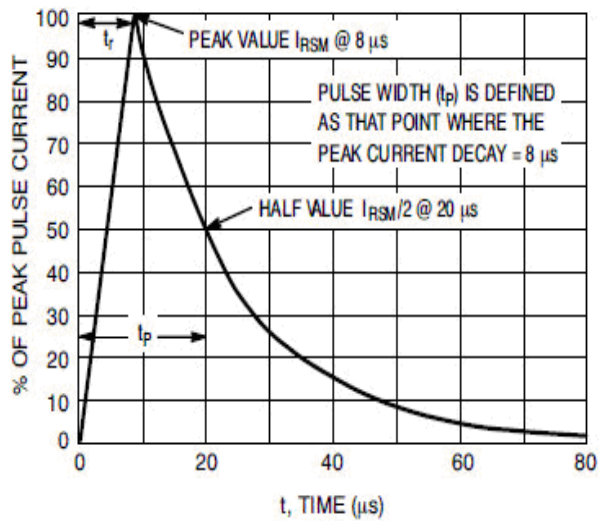
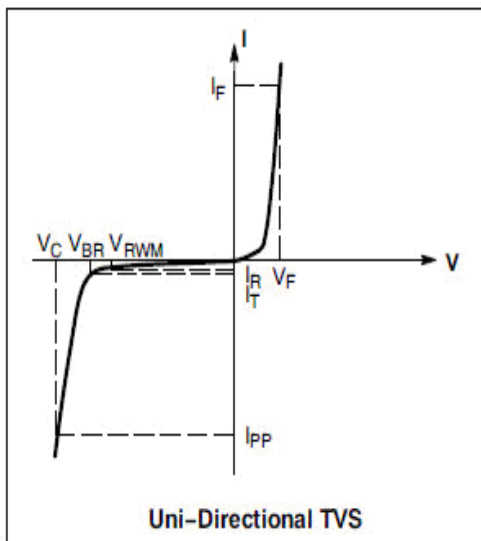
Symbol	Parameter	Typical	Unit
P _{PK}	Peak Pulse Power (t _p =8/20μs)	50 (Max)	W
I _{PP}	Peak Pulse Power (t _p =8/20μs)	4.5	A
V _{ESD1}	ESD per IEC 61000-4-2 (air)	±15	KV
V _{ESD2}	ESD per IEC 61000-4-2 (contact)	±8	KV
T _J	Operating Junction Temperature Range	-55 to +125	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
T _L	Soldering Temperature, t(max)=10s	260	°C

Electrical Characteristics

(T_A=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _{RWM}	Reverse Stand-Off Voltage	Any I/O Pin to GND			5.0	V
V _{BR}	Reverse Breakdown Voltage	I _R =1mA	6.0			V
I _R	Reverse Leakage Current	V _{RWM} =5V			1.0	uA
V _C	Clamping Voltage	I _{PP} =4.5A , t _p =8/20us			10	V
C _{J1}	Junction Capacitance	V _R =0V, f=1MHz Between I/O Pin		0.3		pF
C _{J2}	Junction Capacitance	V _R =0V, f=1MHz Any I/O Pin to GND		0.6		

Electrical Parameter



Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Peak Reverse Leakage Current @ V_{RWM}
I_T	Test Current
V_{BR}	Breakdown Voltage @ I_T
I_F	Forward Current
V_F	Forward Voltage @ I_F

Typical Performance Characteristics

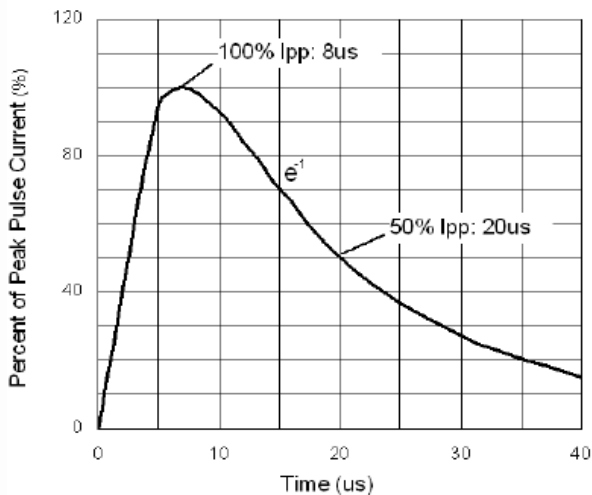


Figure 1. 8/20 us pulse waveform according to IEC 61000-4-5

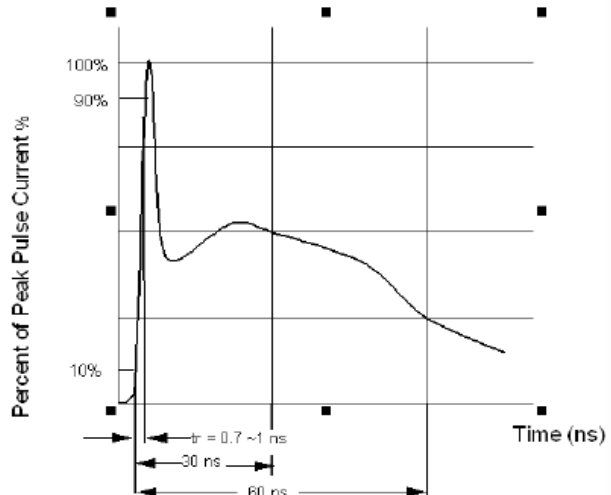


Figure 2. ESD pulse waveform according to IEC 61000-4-2

Typical Performance Characteristics (continue)

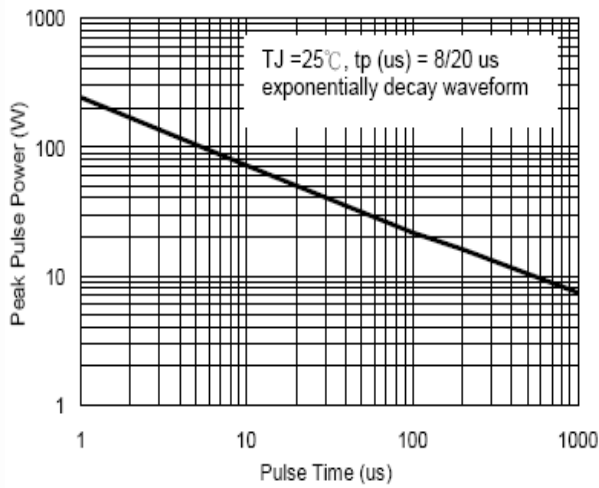


Figure 3. Power Dissipation versus Pulse Time

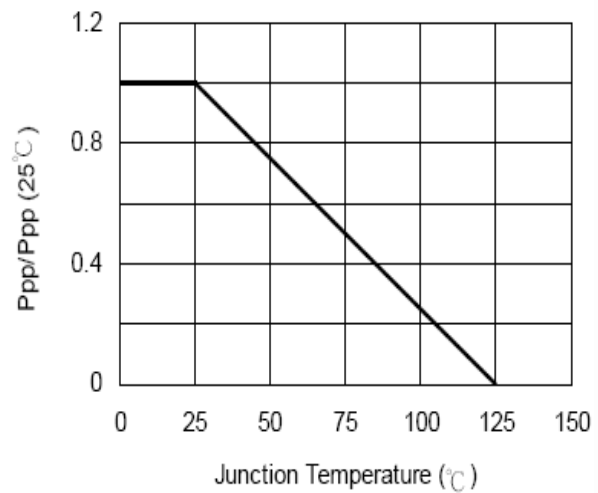


Figure 4. Peak pulse power versus TJ

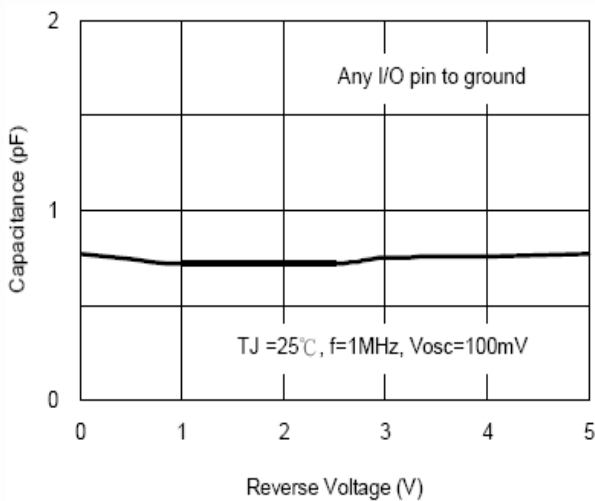


Figure 5. Typical Junction Capacitance

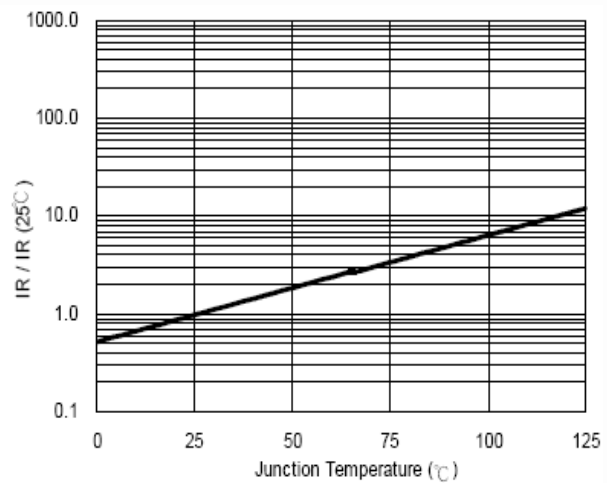


Figure 6. Reverse Leakage Current versus TJ

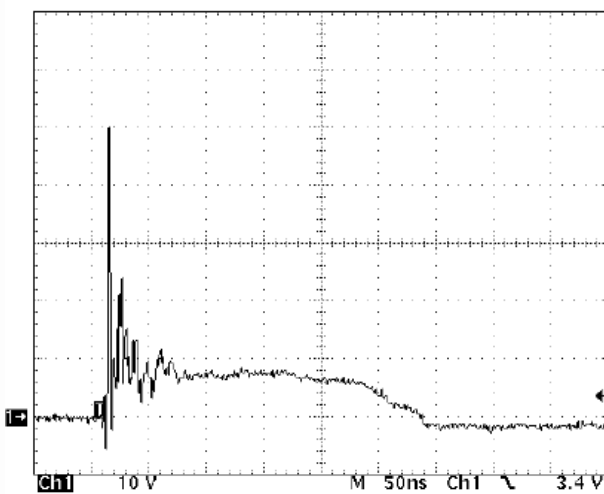


Figure 7. Clamped +8 kV ESD voltage waveform

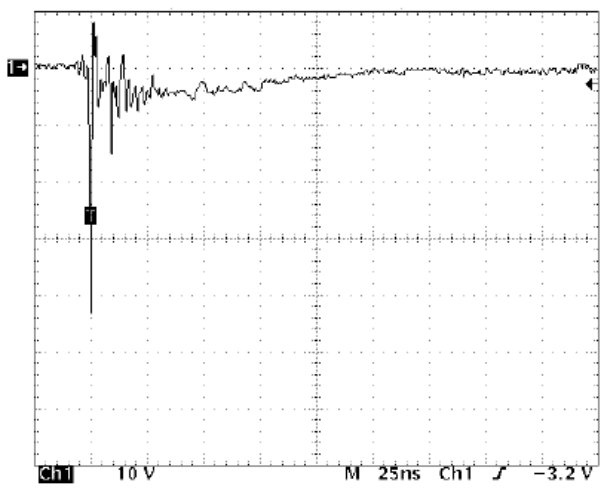
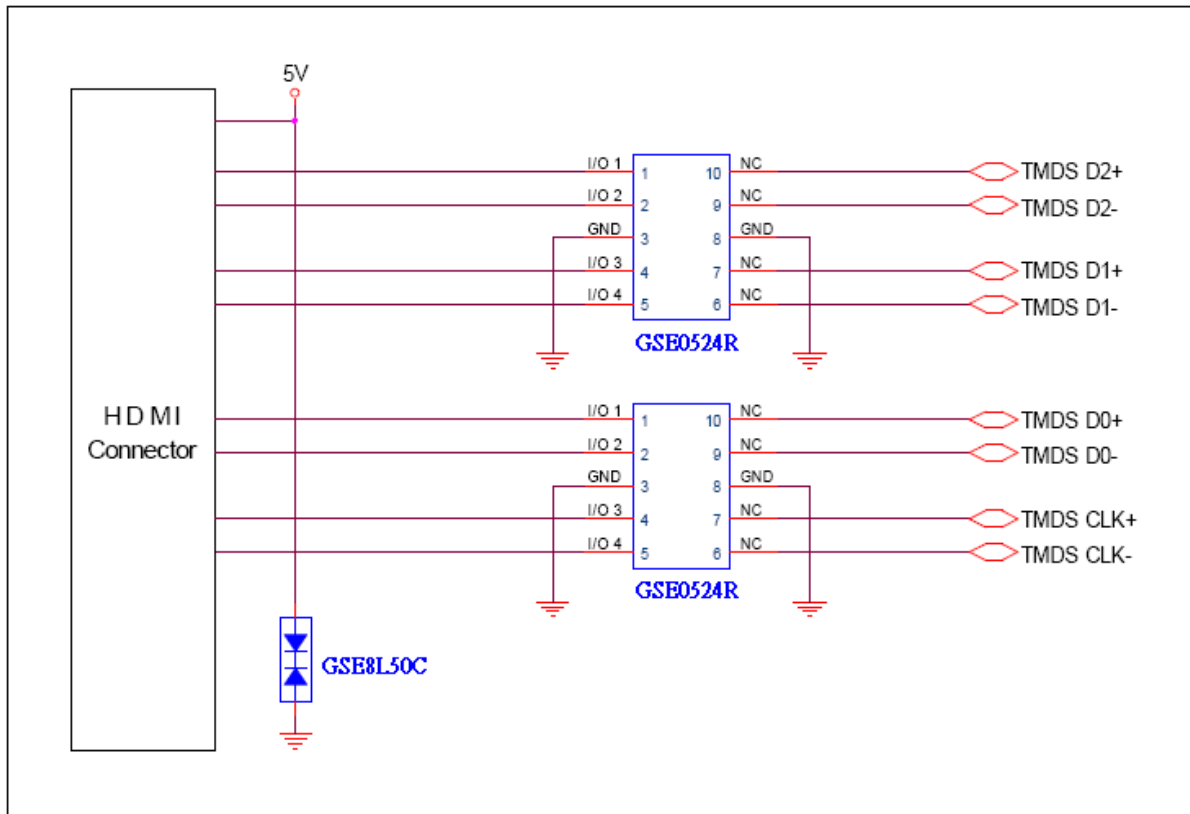
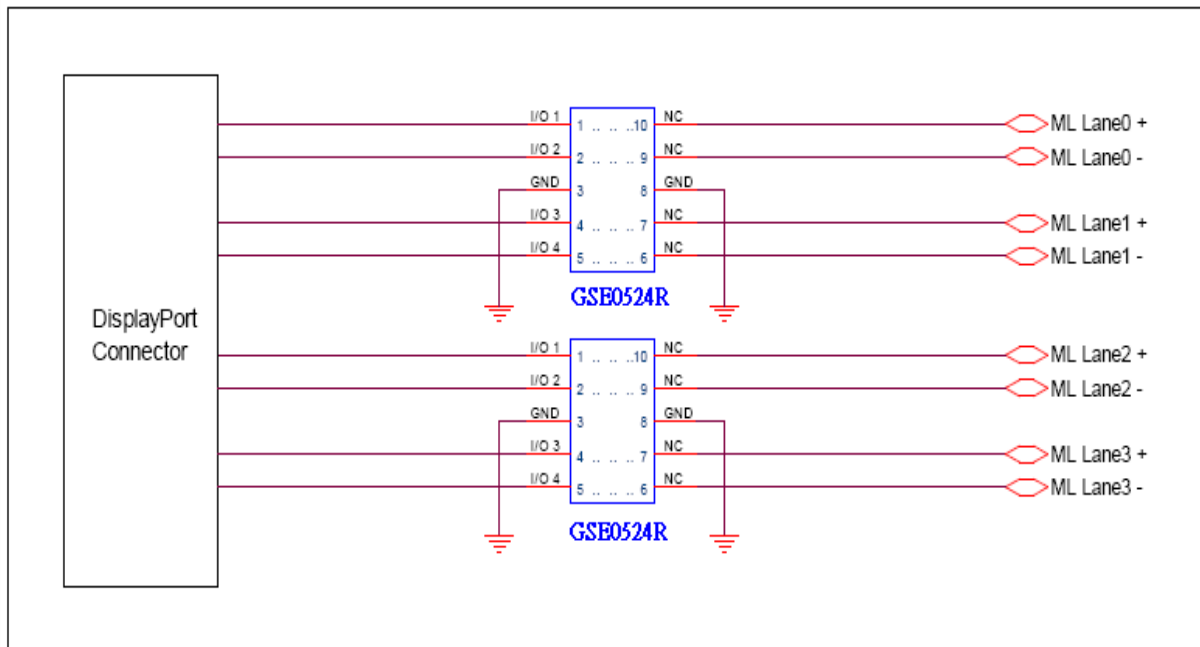


Figure 8. Clamped -8 kV ESD voltage waveform

Application Information



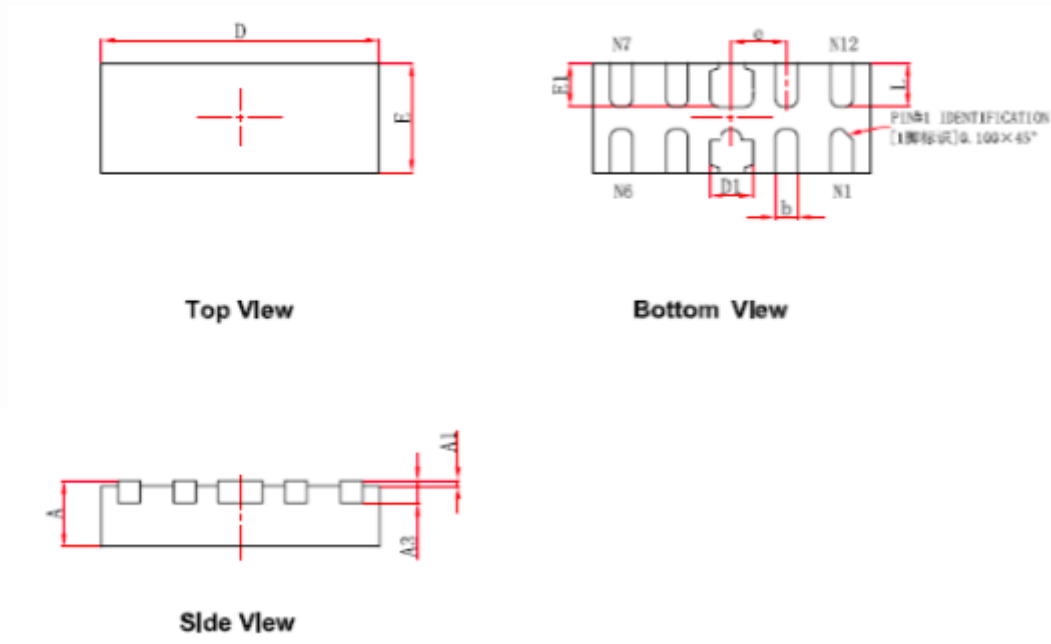
HDMI Interface ESD Protection



Display Port ESD Protection

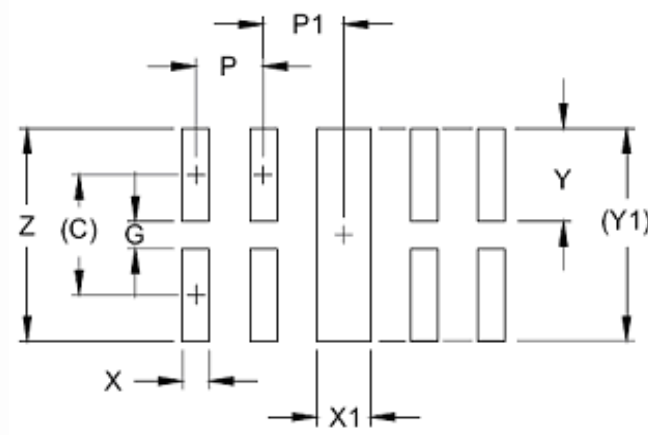
Package Dimension

DFN-10



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.55	0.65	0.022	0.026
A1	0.00	0.05	0.000	0.002
A3	0.152 (REF)		0.006 (REF)	
D	2.45	2.55	0.096	0.100
E	0.95	1.05	0.037	0.041
D1	0.35	0.45	0.014	0.018
E1	0.35	0.45	0.014	0.018
b	0.15	0.25	0.006	0.010
e	0.50 (BSC)		0.020 (BSC)	
L	0.35	0.45	0.014	0.018

Soldering Pad Layout







Dimensions		
Symbol	Millimeters	Inches
C	0.875	0.034
G	0.20	0.008
P	0.50	0.020
P1	0.50	0.020
X	0.20	0.008
X1	0.40	0.016
Y	0.675	0.027
Y1	1.55	0.061
Z	1.55	0.061



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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