

GSM4210W

30V N-Channel Enhancement Mode MOSFET

Product Description

GSM4210W, 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, and low in-line power loss are needed in commercial industrial surface mount applications.

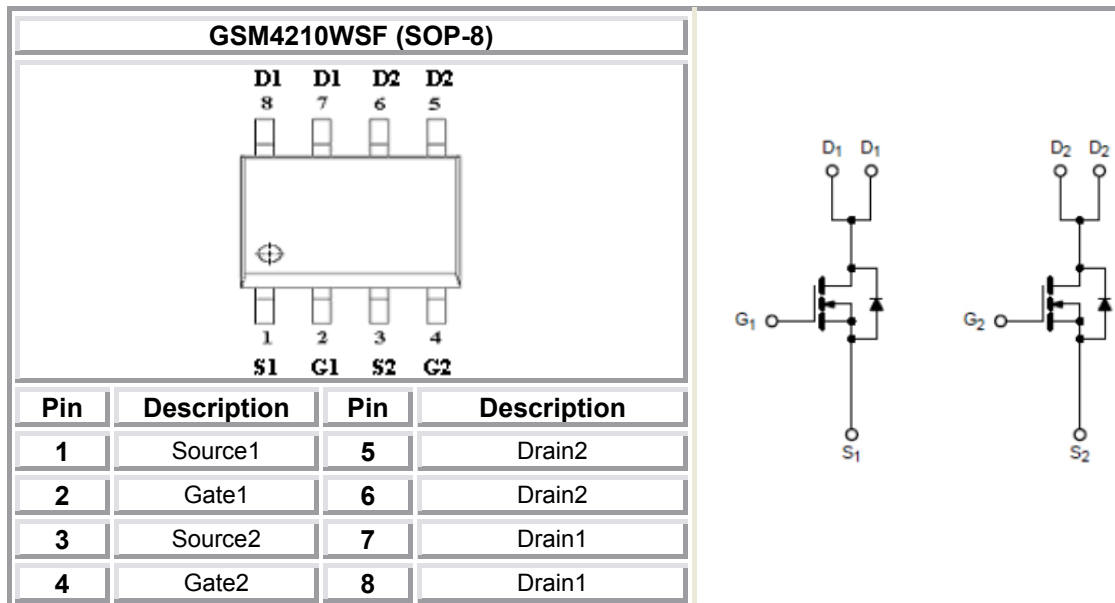
Features

- 30V/6.8A, $R_{DS(ON)}=32m\Omega@V_{GS}=10V$
- 30V/5.6A, $R_{DS(ON)}=40m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOP-8P package design

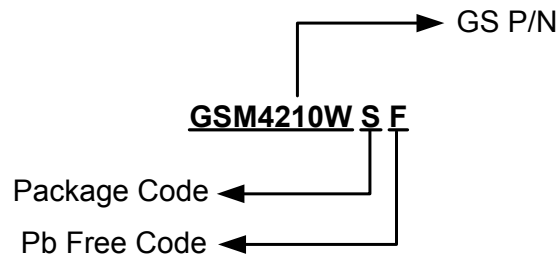
Applications

- Low Current DC/DC Conversion
- Load Switch
- CCFL Inverter
- Power Management in Notebook Computer

Packages & Pin Assignments

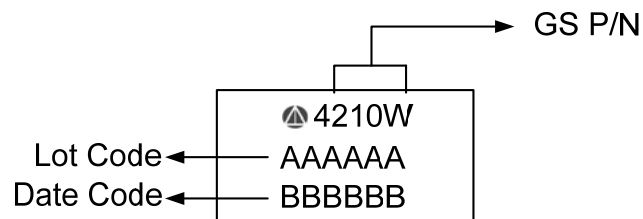


Ordering Information



Part Number	Package	Quantity Reel
GSM4210WSF	SOP-8	2500 PCS

Marking Information



Absolute Maximum Ratings

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

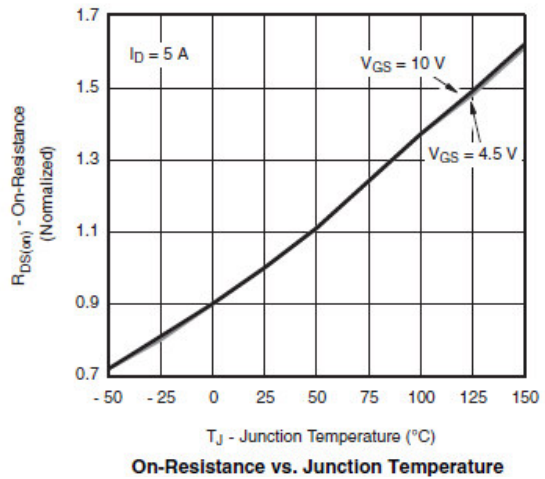
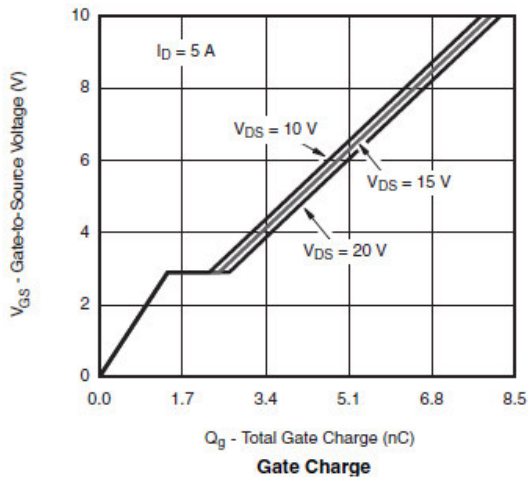
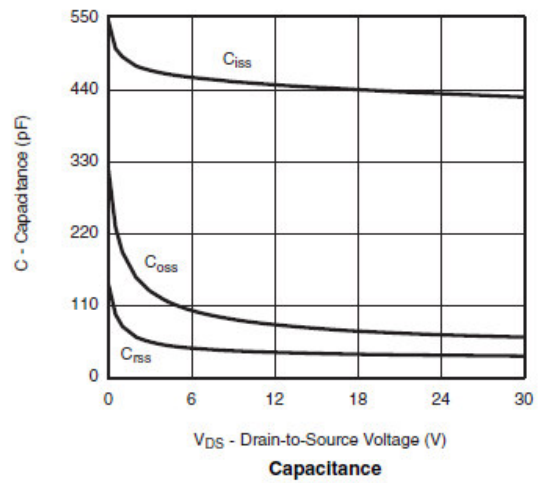
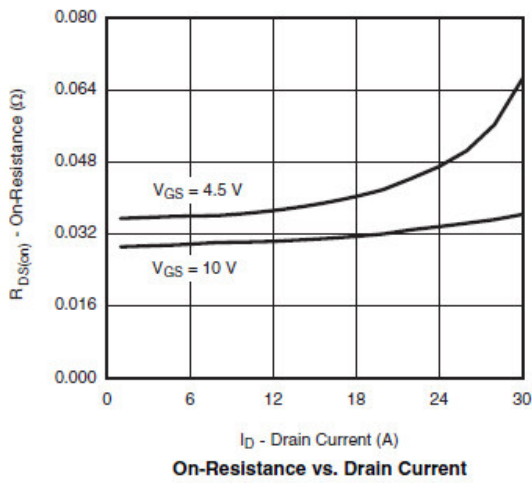
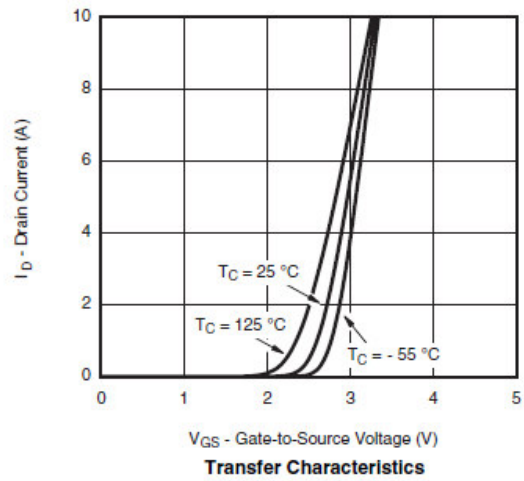
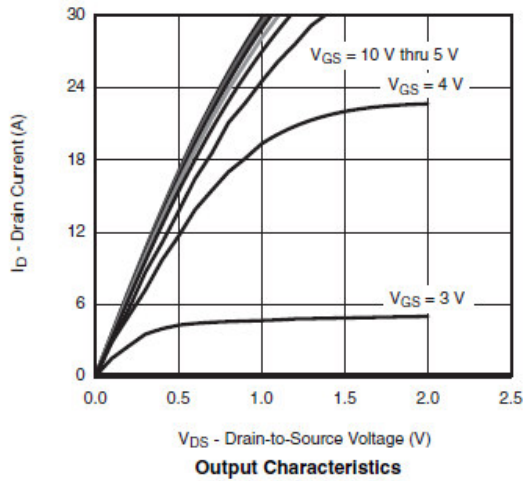
Symbol	Parameter	Typical	Unit	
V_{DSS}	Drain-Source Voltage	30	V	
V_{GSS}	Gate -Source Voltage	± 20	V	
I_D	Continuous Drain Current($T_J=150^\circ\text{C}$)	$T_A=25^\circ\text{C}$	6.8	A
		$T_A=70^\circ\text{C}$	5.6	
I_{DM}	Pulsed Drain Current	20	A	
I_S	Continuous Source Current(Diode Conduction)	1.5	A	
P_D	Power Dissipation	$T_A=25^\circ\text{C}$	2.8	W
		$T_A=70^\circ\text{C}$	1.8	
T_J	Operating Junction Temperature	150	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range	-55/150	$^\circ\text{C}$	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	62.5	$^\circ\text{C}/\text{W}$	

Electrical Characteristics

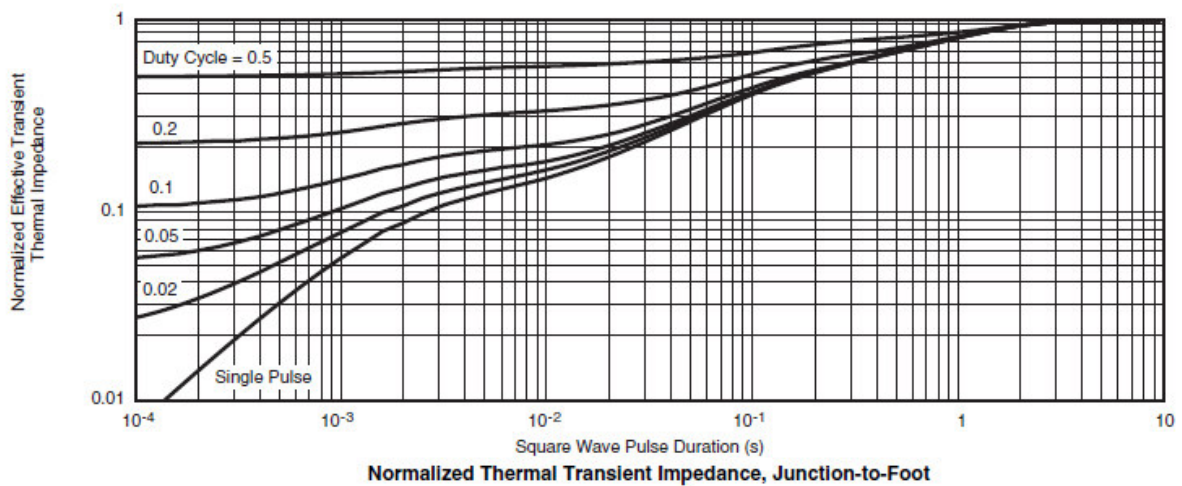
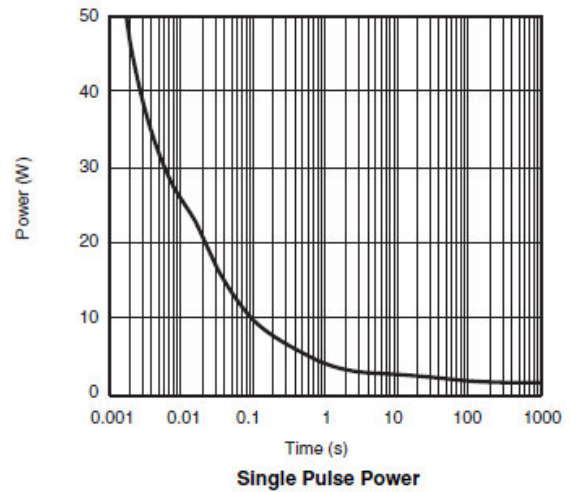
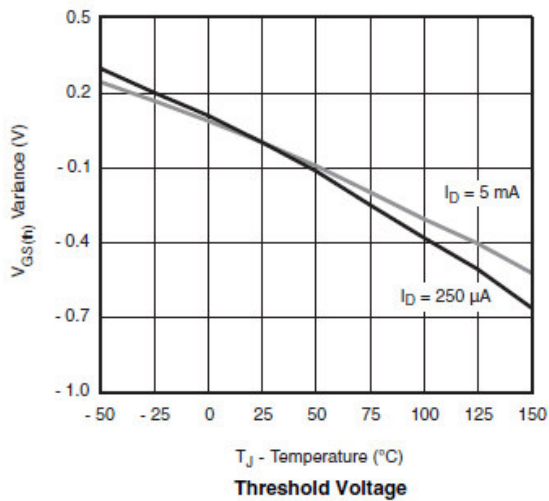
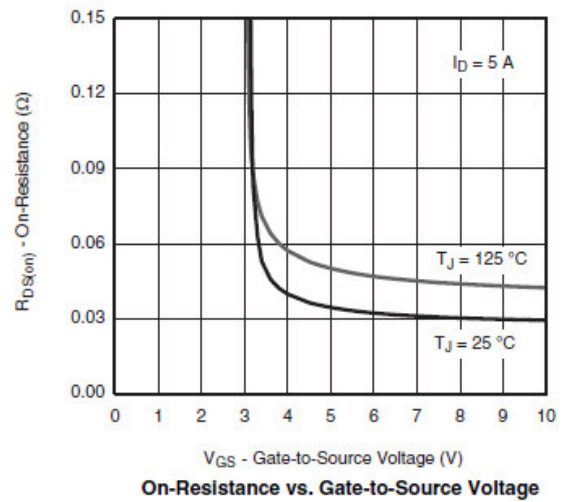
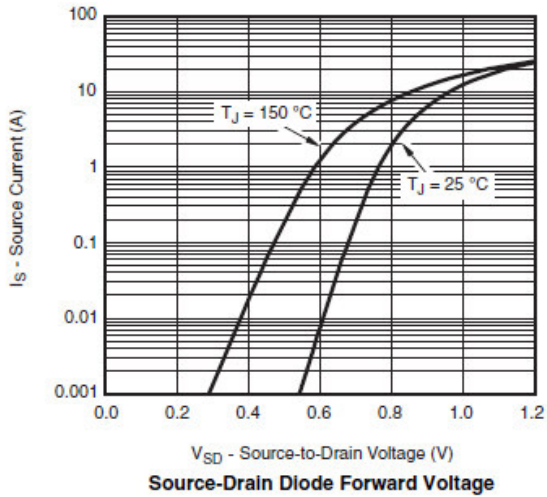
(T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0		2.0	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V			1	μA
		V _{DS} =30V, V _{GS} =0V, T _J =85°C			10	
I _{D(on)}	On-State Drain Current	V _{DS} ≥5V, V _{GS} =10V	10			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =6.8A		25	32	mΩ
		V _{GS} =4.5V, I _D =5.6A		33	40	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =5.0A		16		S
V _{SD}	Diode Forward Voltage	I _S =3.4A, V _{GS} =0V		0.85	1.2	V
Dynamic						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		520		pF
C _{oss}	Output Capacitance			80		
C _{rss}	Reverse Transfer Capacitance			40		
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _D =5A		4	8	nC
Q _{gs}	Gate-Source Charge			2		
Q _{gd}	Gate-Drain Charge			1.2		
t _{d(on)}	Turn-On Time	V _{DD} =15V, R _L =3Ω, I _D =5A, V _{GEN} =10V, R _G =1Ω		5	10	ns
t _r				10	18	
t _{d(off)}	Turn-Off Time			10	20	
t _f				6	12	

Typical Performance Characteristics

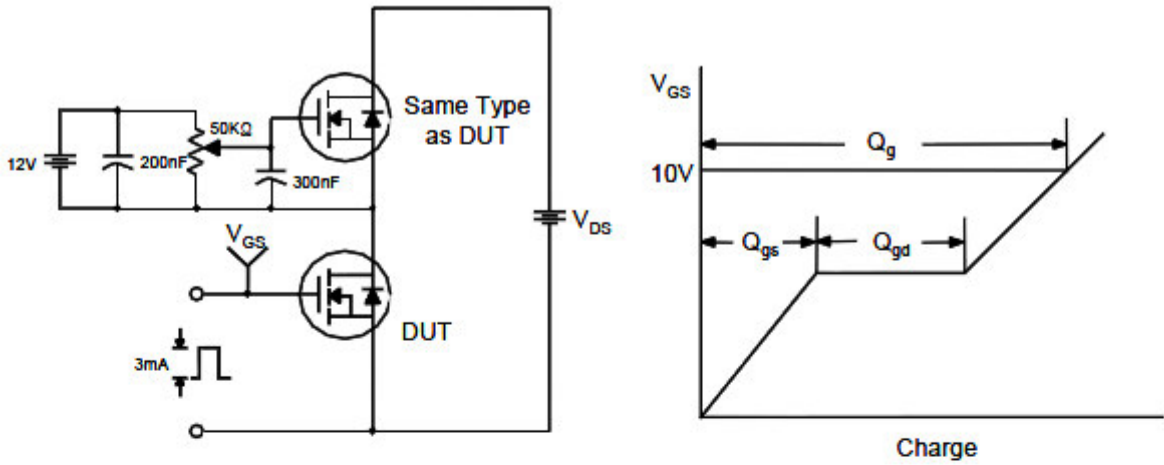


Typical Performance Characteristics (continue)

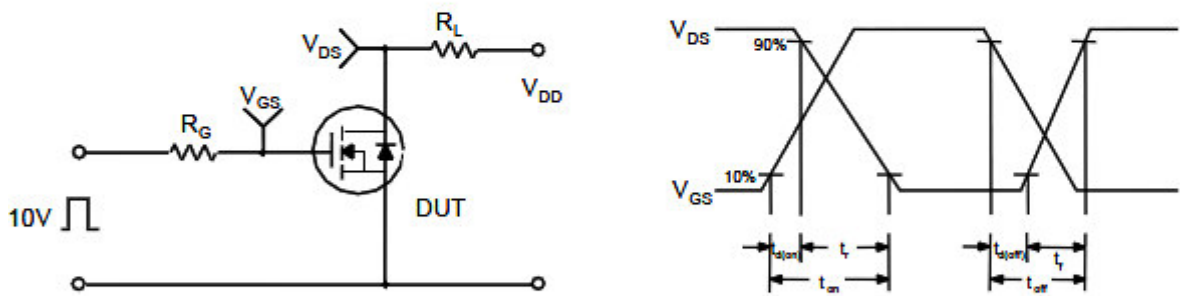


Typical Characteristics

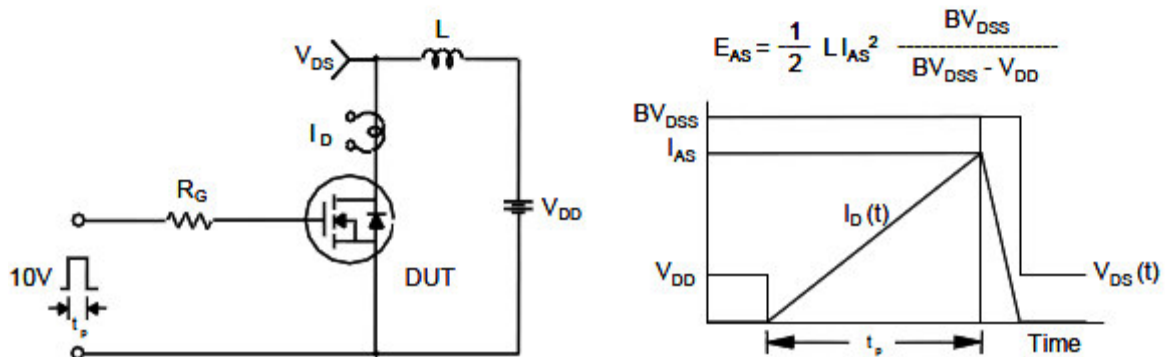
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

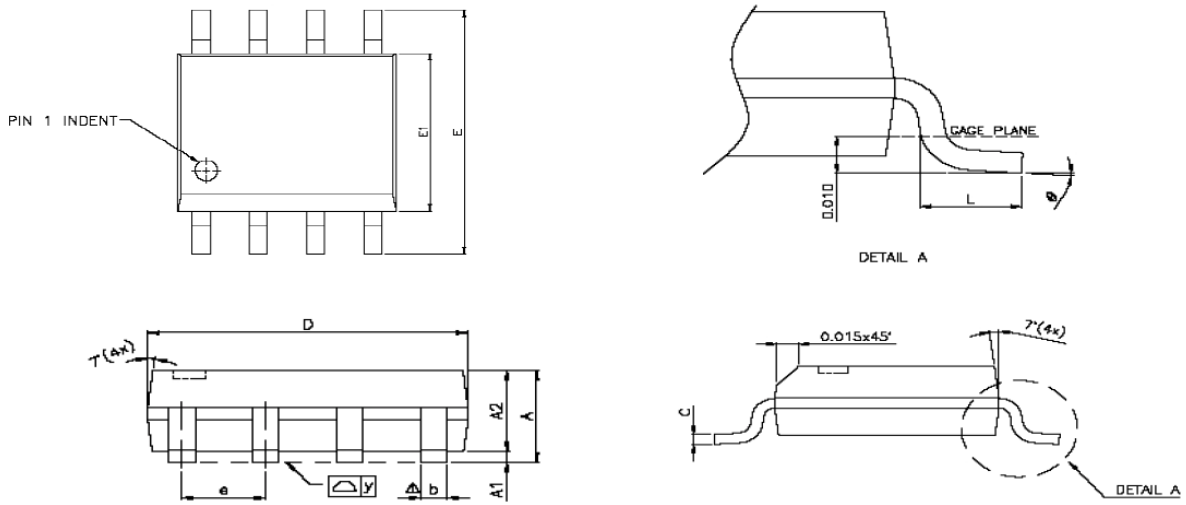


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

SOP-8P







Dimensions





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