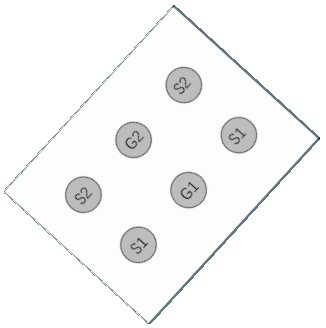
GP6322SP

12V Dual N-Channel MOSFET

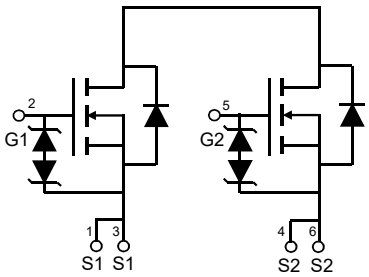
Product Summary

V_{SSS}	$R_{SS(on)TYP}$	I_S
12V	5.3mΩ@4.5V	9A
	5.7mΩ@3.8V	
	6.3mΩ@3.1V	
	7.8mΩ@2.5V	

CSPA1912-6



Schematic diagram



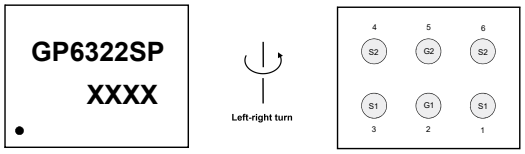
Feature

- Trench Technology
- Common-drain design
- Supper high density cell design
- ESD Diode−Protected Gate
- CSP

Application

- Lithium−ion Battery Charging and Discharging Switch

MARKING:



Top View **Bottom View**

GP6322SP = Device Code
XXXX = Date Code
Solid Dot = PIN1

Source1:1,3 Gate1:2
Source2:4,6 Gate2:5

ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Source-Source Voltage		V_{SSS}	12	V
Gate-Source Voltage		V_{GS}	±10	V
Source Current	DC[1]	I_S	9	A
	Pulse[2]	I_{SP}	90	A
Total Power Dissipation	DC[1]	P_D	2.1	W
Channel Temperature		T_{CH}	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25℃ unless otherwise noted)

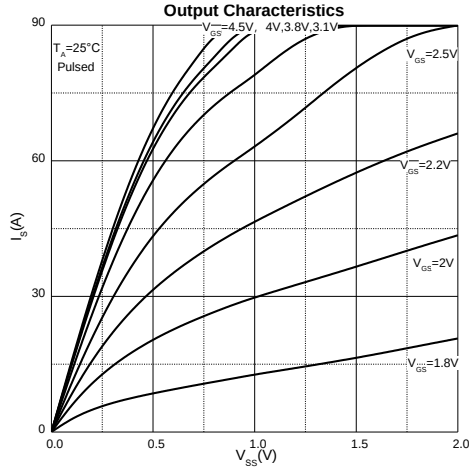
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Source-Source Breakdown Voltage	BV_{SSS}	V_{GS} = 0V , I_S = 250μA	12			V
Zero Gate Voltage Source Current	I_{SSS}	V_{SS} = 12V, V_{GS} = 0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS} = ±10V, V_{SS} = 0V			±10	μA
On Characteristics						
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{SS} =10V, I_S = 1mA	0.4	0.9	1.4	V
Source-Source On-resistance	$R_{SS(on)}$	V_{GS} = 4.5V, I_S =3A	3.0	5.3	6.0	mΩ
		V_{GS} = 3.8V, I_S =3A	3.3	5.7	6.6	
		V_{GS} = 3.1V, I_S =3A	3.5	6.3	7.9	
		V_{GS} = 2.5V, I_S =3A	4.5	7.8	13.9	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{SS} = 6V, V_{GS} = 0V, f = 0.1MHz		1435		pF
Output Capacitance	C_{oss}			455		
Reverse Transfer Capacitance	C_{rss}			332		
Switching Characteristics						
Total Gate Charge	Q_g	V_{SS} = 10V, V_{GS} = 6V, I_S = 10A		39		nC
Gate-Source Charge	Q_{gs}			3.6		
Gate-Drain Charge	Q_{gd}			8.8		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 6V, V_{GS} = 4V,R_L =1.3Ω		270		ns
Turn-On Rise Time	t_r			340		
Turn-Off Delay Time	$t_{d(off)}$			1350		
Turn-Off Fall Time	t_f			1250		
Source-Drain Diode Characteristics						
Diode Forward Voltage	$VF_{(S-S)}$	V_{GS} = 0V, I_S = 2A			1.2	V

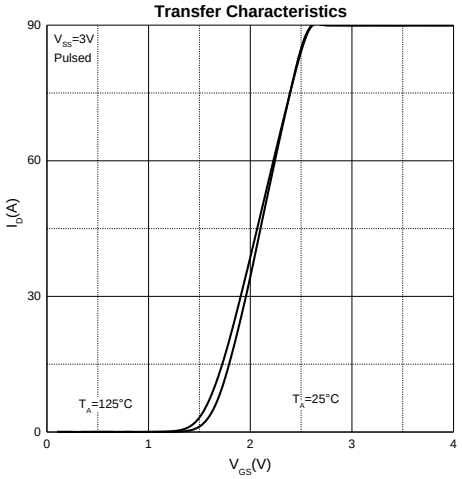
Notes :

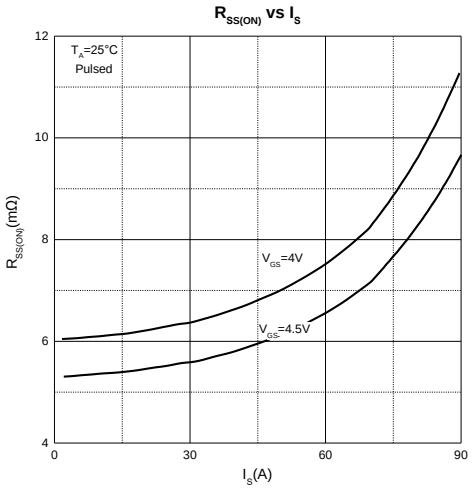
1.Mounted on FR-4 board (25.4 mm × 25.4 mm × t1.0 mm) with 1oz. Copper, using the minimum recommended pad size.

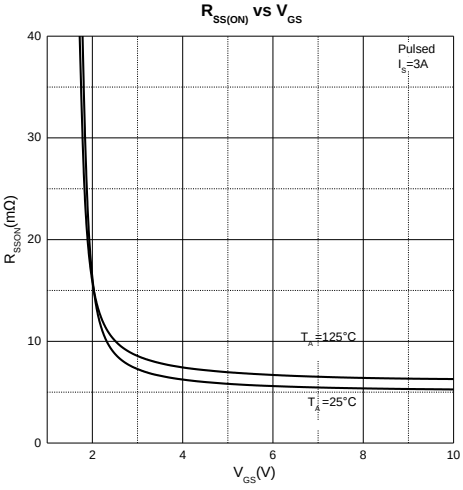
2.Pulse Test : Pulse Width = 10μs, duty cycle ≤ 1%.

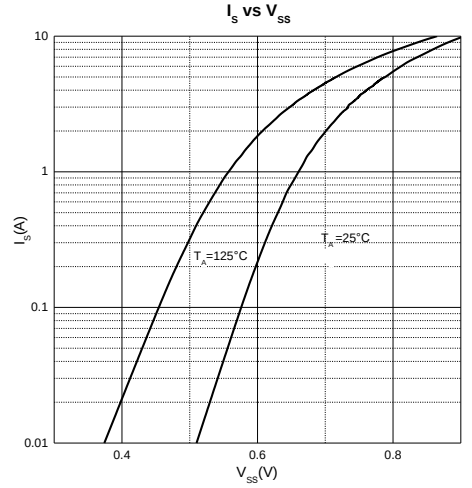
Typical Characteristics

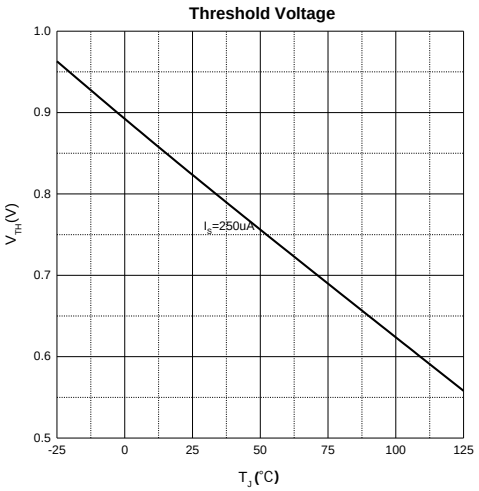


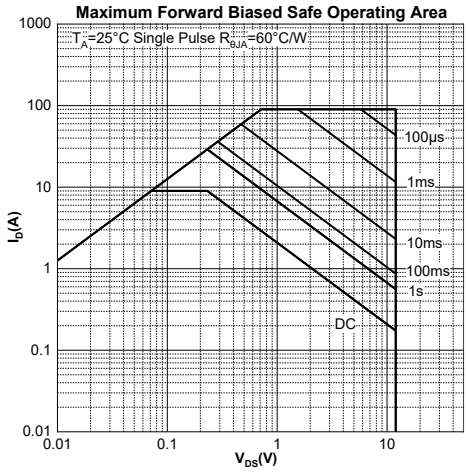


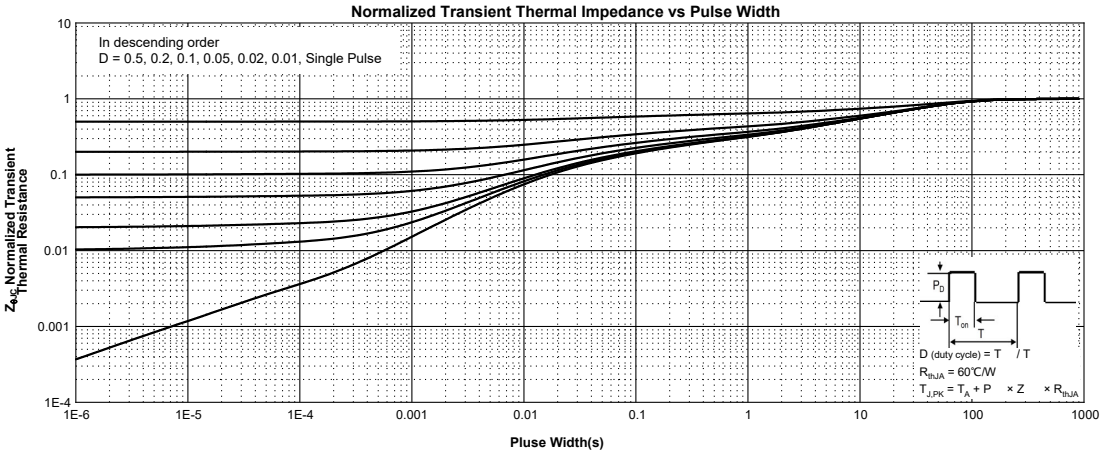




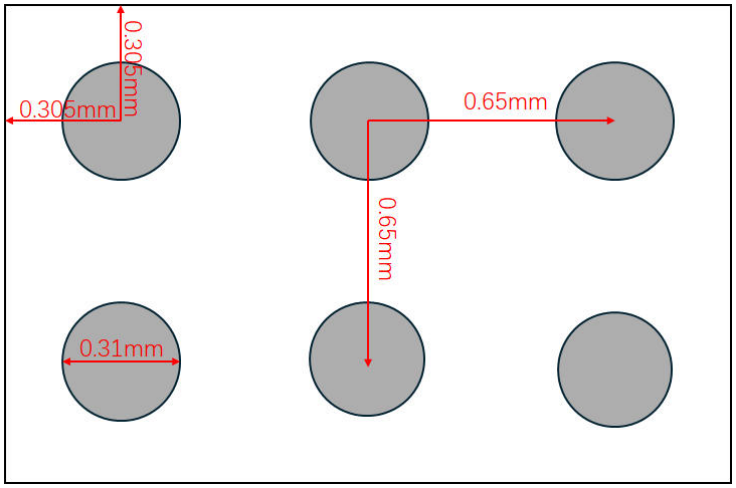





Maximum Forward Biased Safe Operating Area
T_A=25°C Single Pulse R_θJA=60°C/W
1000
100
10
1
0.1
0.01
I_D(A)
0.01
0.1
1
10
V_DS(V)
100μs
1ms
10ms
100ms
1s
DC


Normalized Transient Thermal Impedance vs Pulse Width
In descending order
D = 0.5, 0.2, 0.1, 0.05, 0.02, 0.01, Single Pulse
Z_θJC Normalized Transient Thermal Resistance
10
1
0.1
0.01
0.001
1E-4
1E-6
1E-5
1E-4
0.001
0.01
0.1
1
10
100
1000
Pluse Width(s)
P_D
T_on
T
D (duty cycle) = T / T
R_thJA = 60℃/W
T_J,PK = T_A + P × Z × R_thJA

CSPA1912-6 Package Information



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