

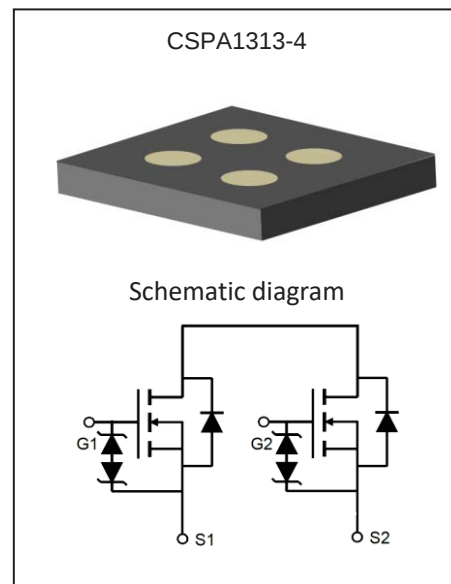
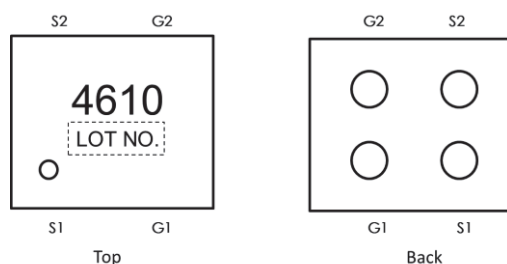
Product Summary

$V_{(BR)SSS}$	$R_{SS(on)TYP}$	I_{SS}
12V	19mΩ@4.5V	8A
	20mΩ@4.0V	
	21mΩ@3.8V	
	24mΩ@3.1V	
	31mΩ@2.5V	

Description

The GP4610SP uses advanced trench technology to provide excellent $R_{SS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V while retaining a 12V $V_{GS(MAX)}$ rating. It is ESD protected. This device is suitable for use as a unidirectional or bi-directional load switch, facilitated by its common-drain configuration.

Marking and pin assignment:



ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Source to Source Voltage	V_{SSS}	12	V
Gate-Source Voltage	V_{GSS}	± 12	V
Source Current(DC) ¹	I_S	8.0	A
Source Current (Pulse) ^{1,2}	I_{SP}	80	A
Total Dissipation	P_T	1.4	W
Channel Temperature	T_{ch}	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$

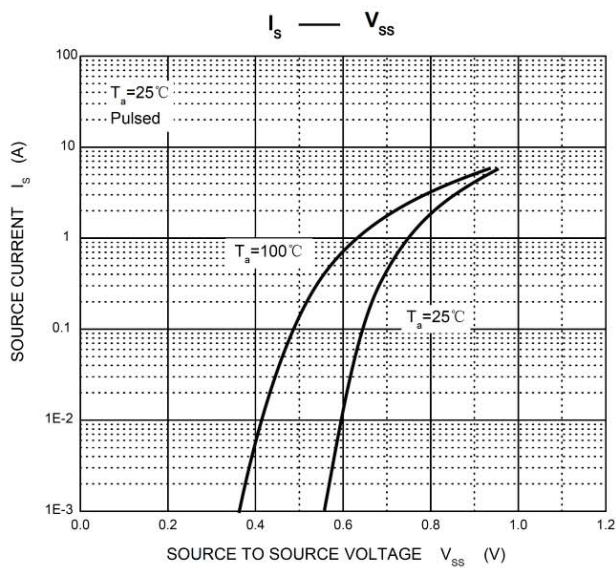
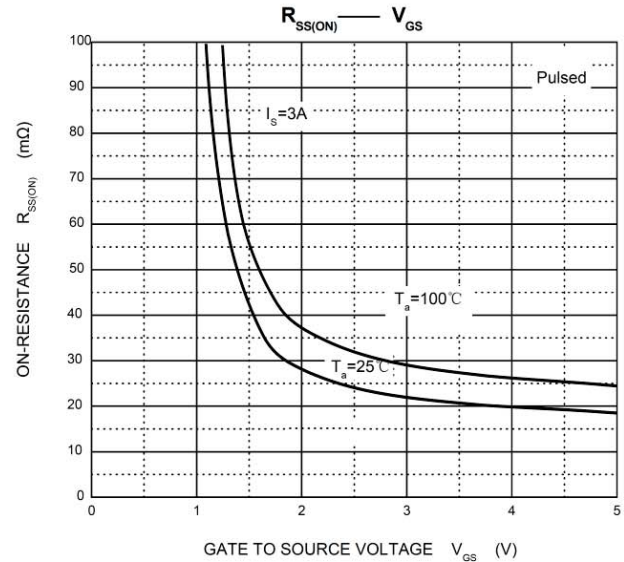
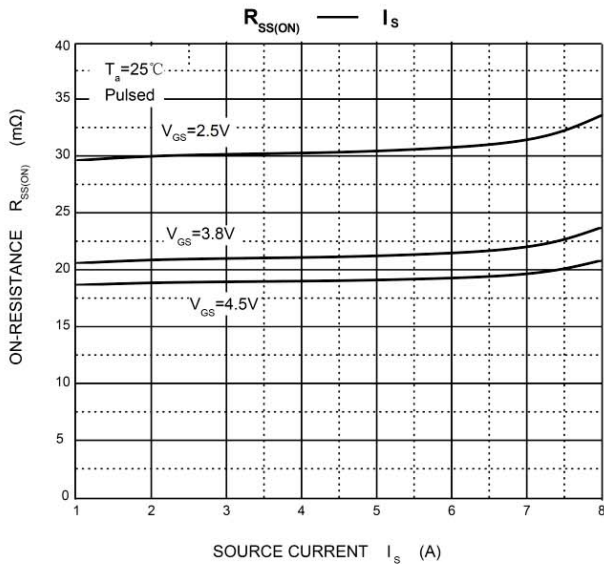
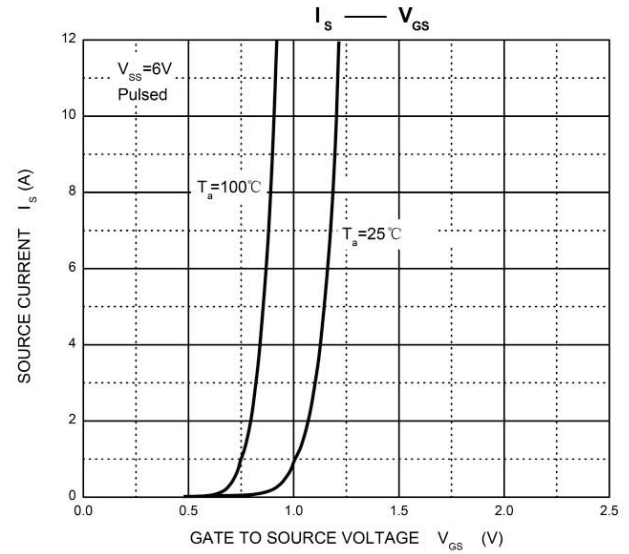
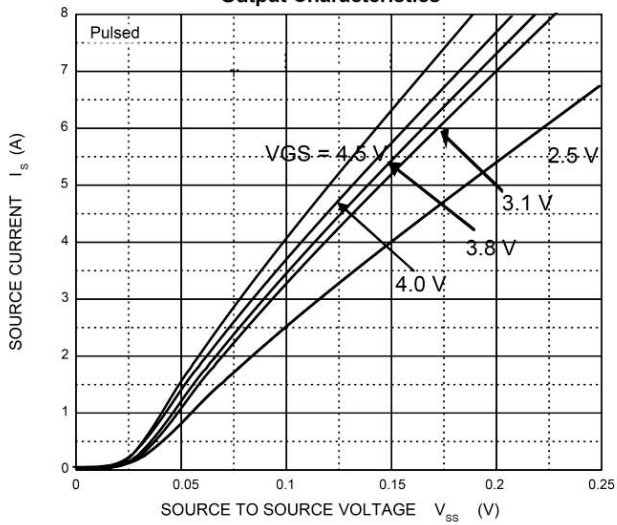
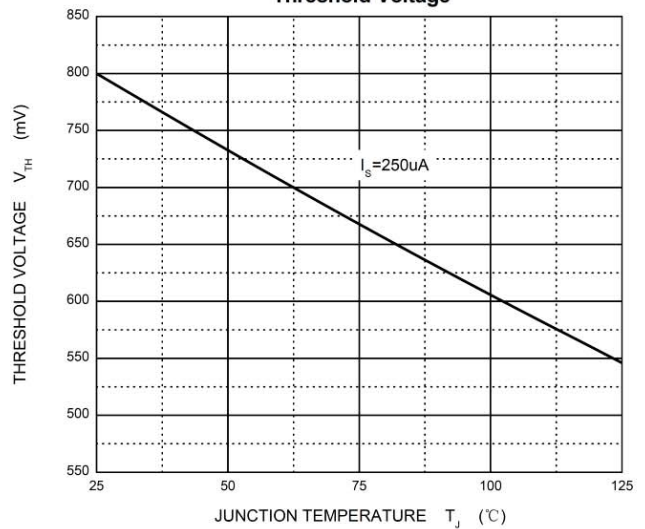
Note:

- 1、 Mounted on FR4 board (25.4mm× 25.4mm× 1.0mm) using the minimum recommended pad size (36μm Copper).
- 2、 $t = 10\mu\text{s}$, Duty Cycle≤1%

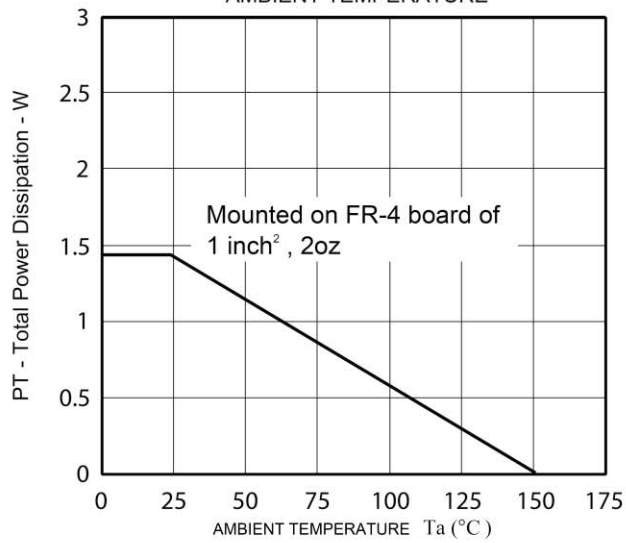
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Parameters						
Source to Source Breakdown Voltage	BV _{SSS}	I _S =250μA, V _{GS} =0V,	12			V
Zero- Gate Voltage Source Current	I _{SSS}	V _{SS} =12V, V _{GS} =0V			1	μA
Gate to Source Leakage Current	I _{GSS}	V _{SS} =0V, V _{GS} = ±8V			±3	μA
Cutoff Voltage	V _{GS(off)}	V _{SS} =10V, I _S =250μA	0.5	0.8	1.3	V
Forward Transfer Admittance	y _{gFS}	V _{SS} =6V, I _S =1A	1	7		S
Static Source to Source On-Resistance	R _{SS(on)}	V _{GS} =4.5V, I _S =3A	13	19	25	mΩ
		V _{GS} =4.0V, I _S =3A	14	20	26	
		V _{GS} =3.8V, I _S =3A	15	21	27	
		V _{GS} =3.1V, I _S =3A	17	24	32	
		V _{GS} =2.5V, I _S =3A	21	31	42	
Turn-on Delay Time	t _{d(on)}	V _{SS} =10V, I _S =3A V _{GS} =4.5V		0.7		μS
Turn-on Rise Time	t _r			3.8		
Turn-Off Delay Time	t _{d(off)}			10		
Turn-Off Fall Time	t _f			10		
Total Gate Charge	Q _g	V _{SS} =10V, I _S =6A, V _{GS} =4.5V		8.2		nC
Diode Forward Voltage	V _{F(S-S)}	V _{GS} =0V, I _S =1A			1.2	V

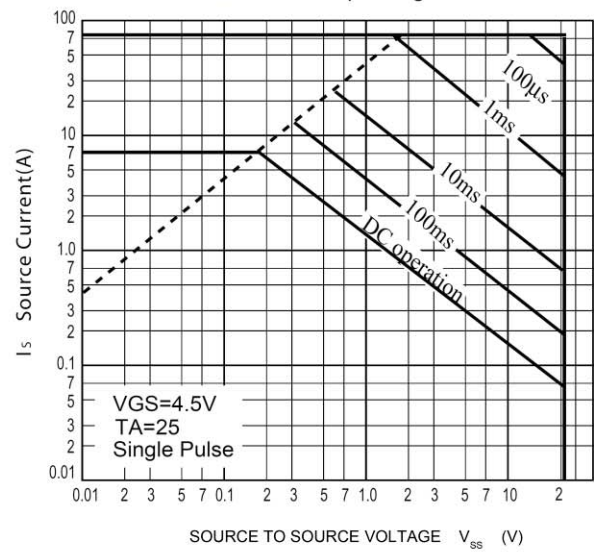
Typical Electrical and Thermal Characteristics

Output Characteristics

Threshold Voltage


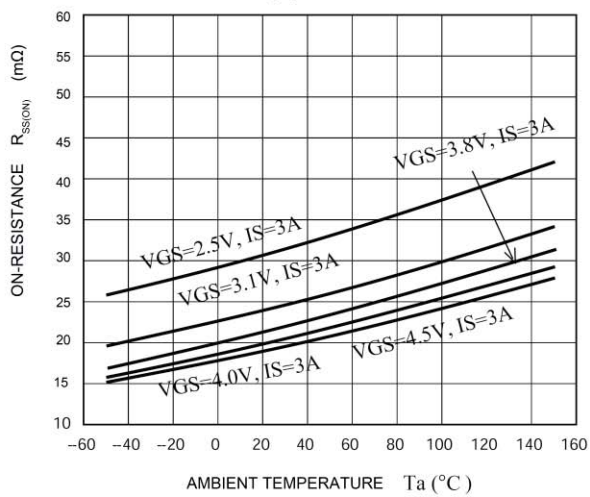
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



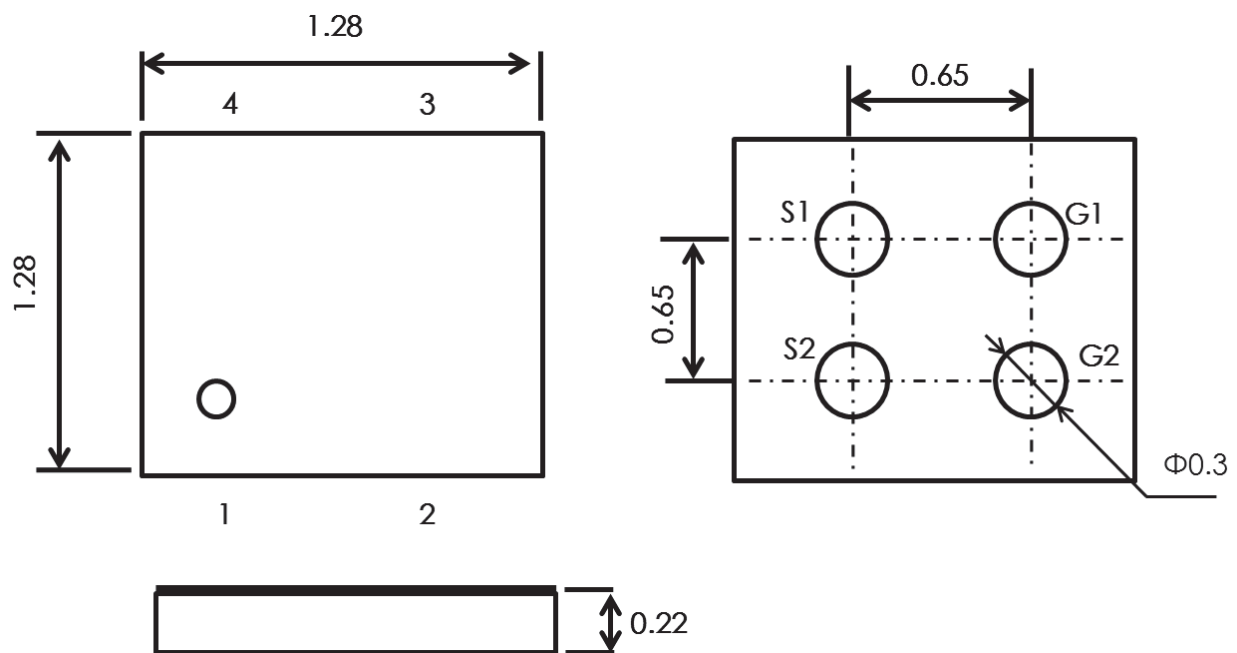
Maximum Safe Operating Area

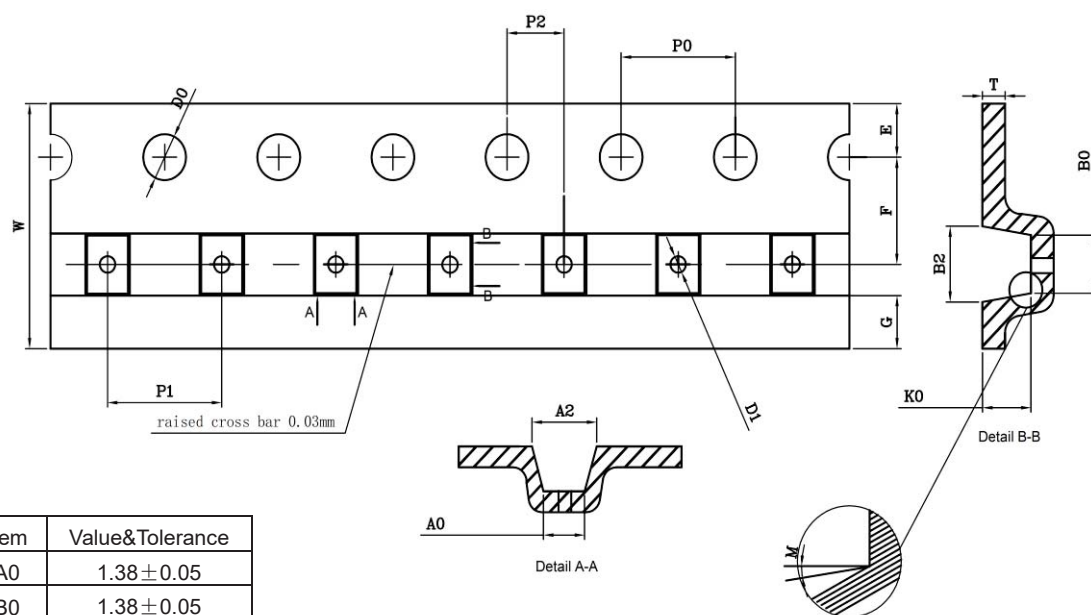


$R_{ss(ON)}$ — T_a



CSPA1313-4 Package Outline Dimensions(Unit:mm)



CSPA1313-4 Tape(Unit:mm)


Item	Value&Tolerance
A0	1.38 ± 0.05
B0	1.38 ± 0.05
K0	0.44 ± 0.05
A2	NA
B2	NA
D0	1.50 ± 0.10
D1	0.50 ± 0.05
P0	4.00 ± 0.10
P1	4.00 ± 0.10
P2	2.00 ± 0.05
E	1.75 ± 0.10
F	3.50 ± 0.05
G	NA
T	0.20 ± 0.02
W	$8.00 + 0.30 / - 0.10$
M	MAX 3°