

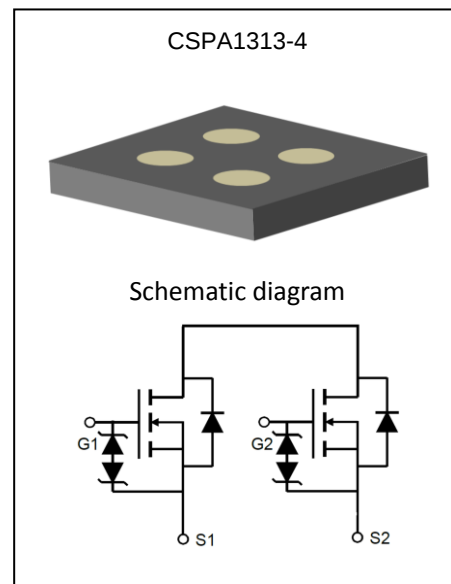
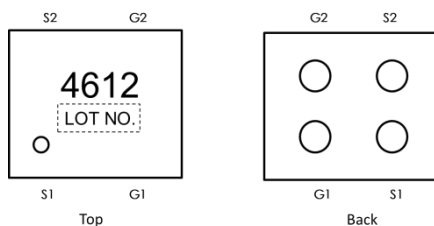
Product Summary

$V_{(BR)SSS}$	$R_{DS(on)TYP}$	I_{SS}
22V	30mΩ@4.5V	6A
	31mΩ@4.0V	
	32mΩ@3.8V	
	35mΩ@3.1V	
	42mΩ@2.5V	

Description

The GP4612SP uses advanced trench technology to provide excellent $R_{DS(on)}$, 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}	22	V
Gate-Source Voltage	V_{GSS}	± 12	V
Source Current(DC) ¹	I_S	6.0	A
Source Current (Pulse) ^{1,2}	I_{SP}	60	A
Total Dissipation	P_T	1.4	W
Channel Temperature	T_{ch}	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$

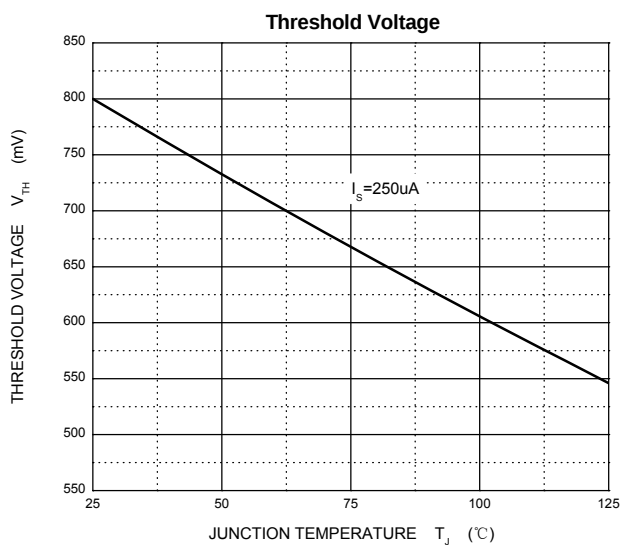
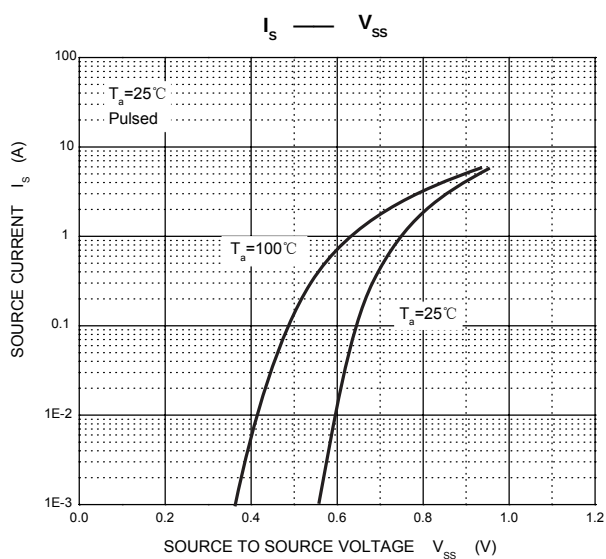
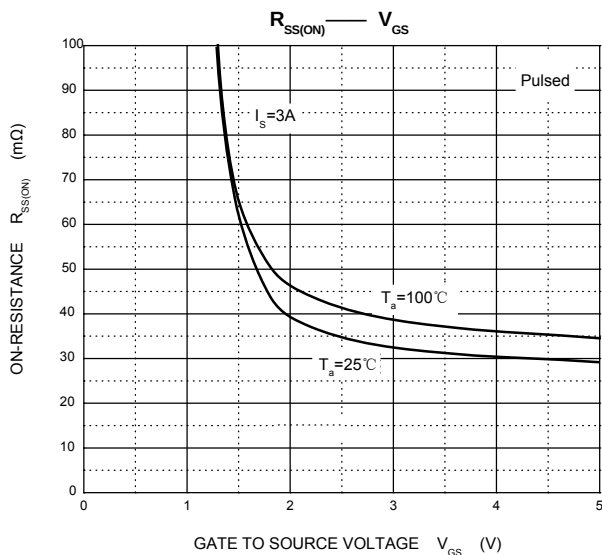
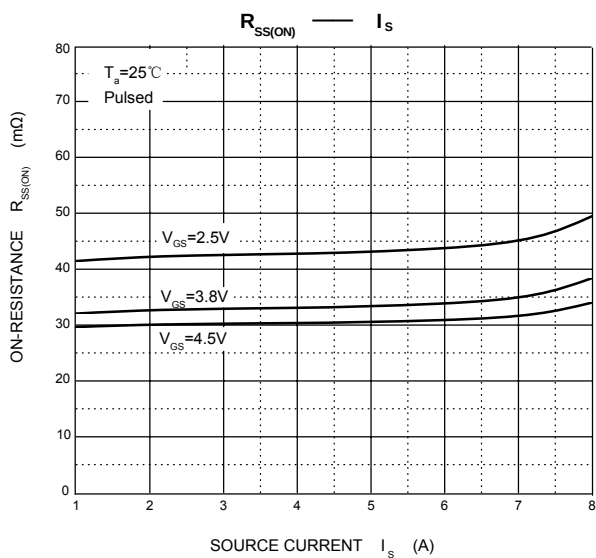
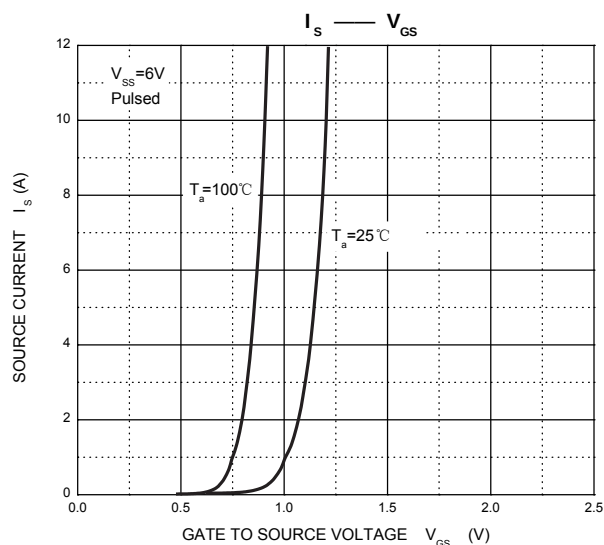
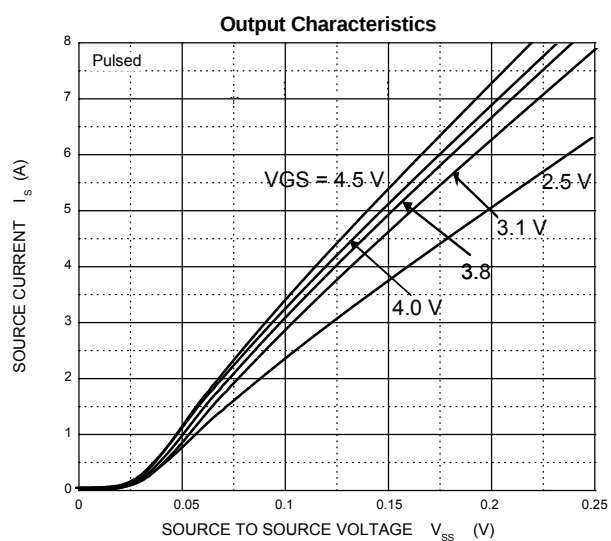
Note:

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%

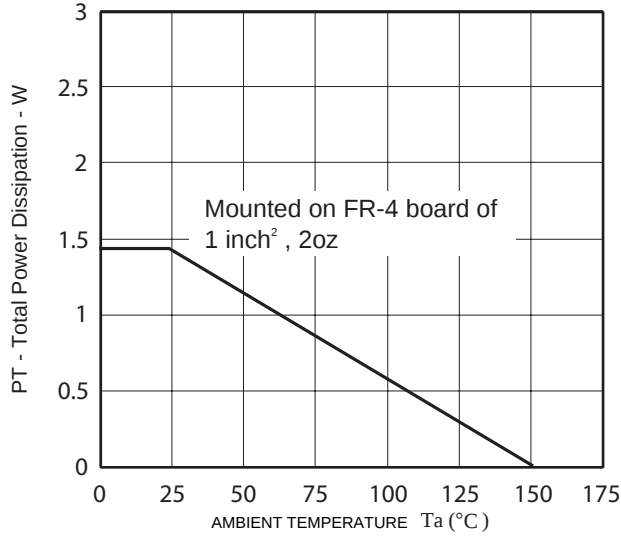
MOSFET ELECTRICAL CHARACTERISTICS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Parameters						
Source to Source Breakdown Voltage	BV_{SSS}	$I_S=250\mu\text{A}$, $V_{GS}=0\text{V}$,	22			V
Zero- Gate Voltage Source Current	I_{SSS}	$V_{SS}=20\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{SS}=0\text{V}$, $V_{GS}=\pm 8\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{SS}=10\text{V}$, $I_S=250\mu\text{A}$	0.5	0.8	1.3	V
Forward Transfer Admittance	$ y_{FS} $	$V_{SS}=10\text{V}$, $I_S=3\text{A}$	1	7		S
Static Source to Source On-Resistance	$R_{SS(on)}$	$V_{GS}=4.5\text{V}$, $I_S=3\text{A}$	21	30	36	$\text{m}\Omega$
		$V_{GS}=4.0\text{V}$, $I_S=3\text{A}$	22	31	38	
		$V_{GS}=3.8\text{V}$, $I_S=3\text{A}$	23	32	40	
		$V_{GS}=3.1\text{V}$, $I_S=3\text{A}$	26	35	45	
		$V_{GS}=2.5\text{V}$, $I_S=3\text{A}$	30	42	60	
Turn-on Delay Time	$t_{d(on)}$	$V_{SS}=10\text{V}$, $I_S=3\text{A}$ $V_{GS}=4.5\text{V}$		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	$V_{SS}=10\text{V}$, $I_S=6\text{A}$, $V_{GS}=4.5\text{V}$		7.8		nC
Diode Forward Voltage	$V_{F(S-S)}$	$V_{GS}=0\text{V}$, $I_S=1\text{A}$			1.2	V

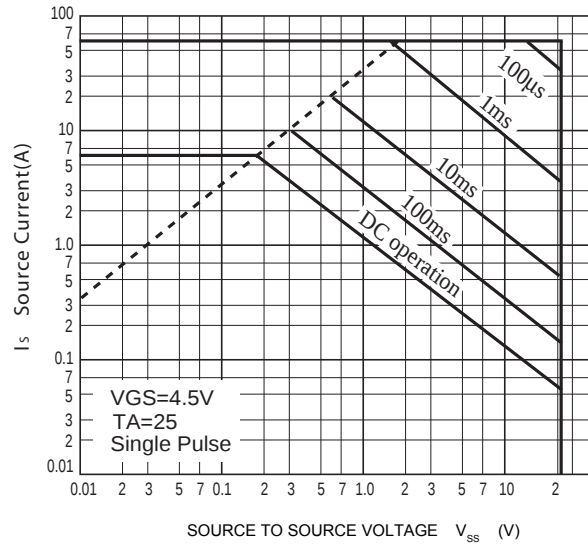
Typical Electrical and Thermal Characteristics



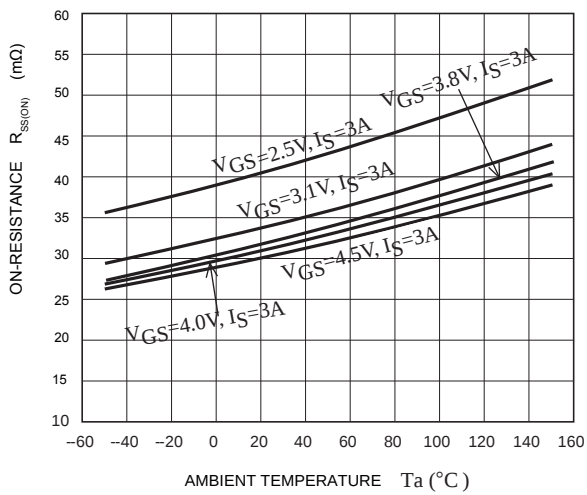
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



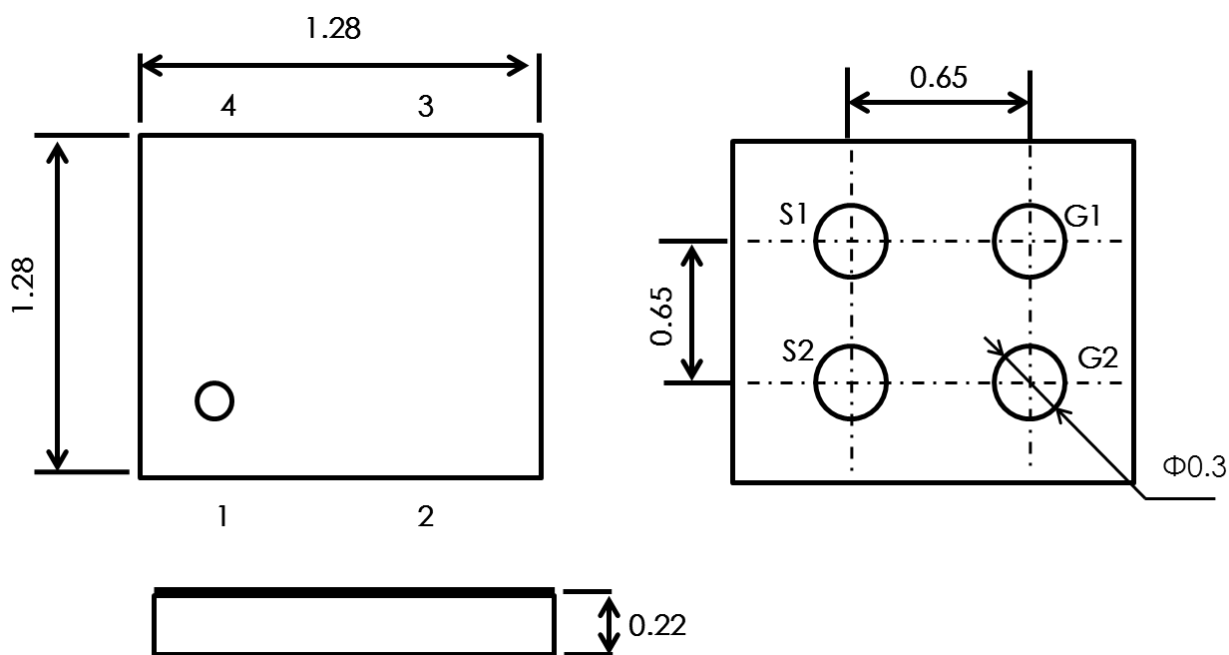
Maximum Safe Operating Area

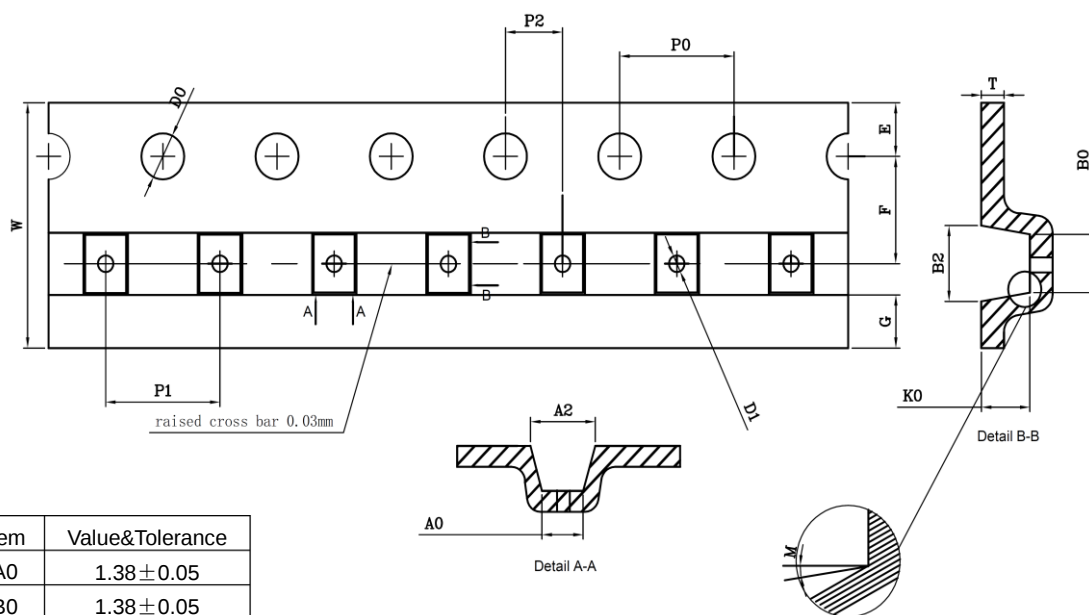


$R_{ss(ON)}$ — T_a



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°