GP4404SP

12V Dual N-Channel MOSFET

Product Summary

$V_{(BR)SSS}$	$R_{DS(on)TYP}$	I_{SS}
12V	22mΩ@4.5V	6A
	23mΩ@4.0V	
	24mΩ@3.8V	
	28mΩ@3.1V	
	34mΩ@2.5V	

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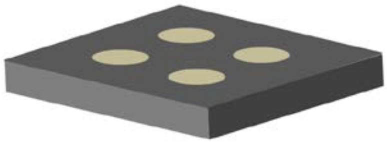
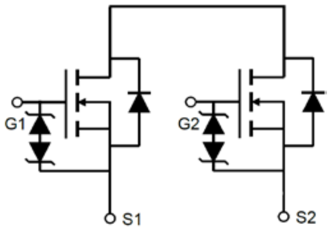


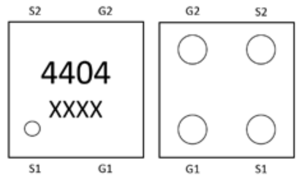
Schematic diagram



Description

The GP4404SP 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℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Source to Source Voltage	V_{SSS}	12	V
Gate-Source Voltage	V_{GSS}	±8	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	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Note:

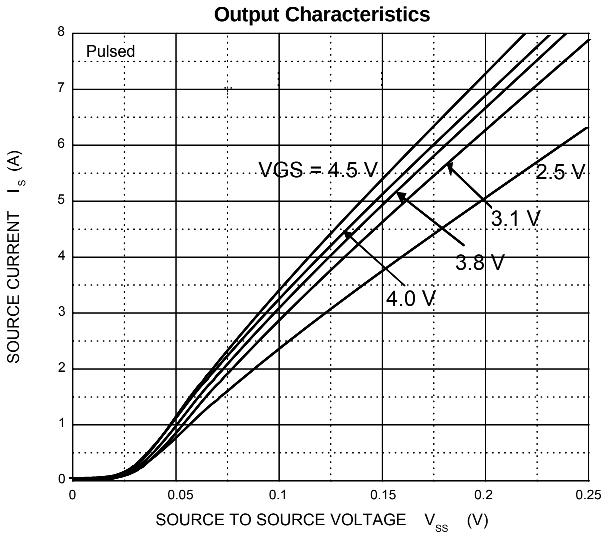
1、Mounted on FR4 board (25.4mm×25.4mm×t1.0mm)
using the minimum recommended pad size (36μm Copper).

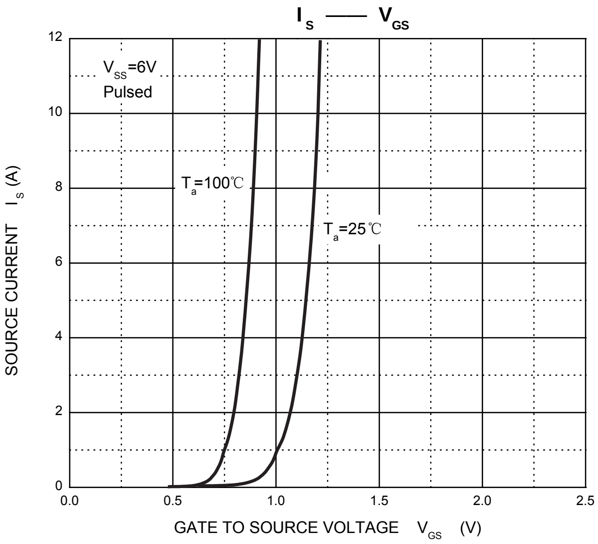
2、t = 10μs, Duty Cycle≤1%

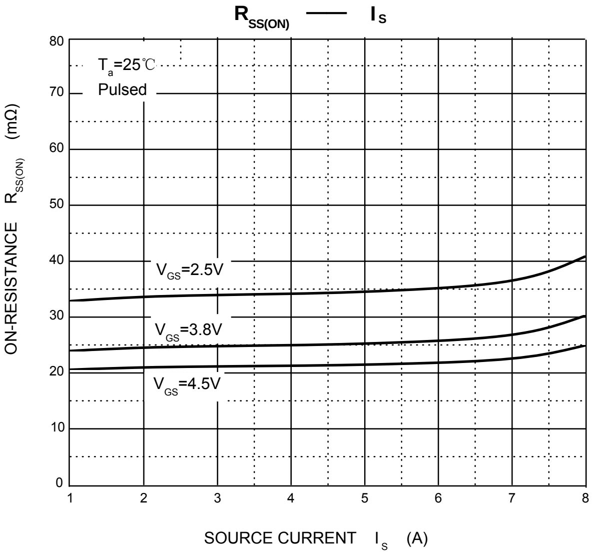
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

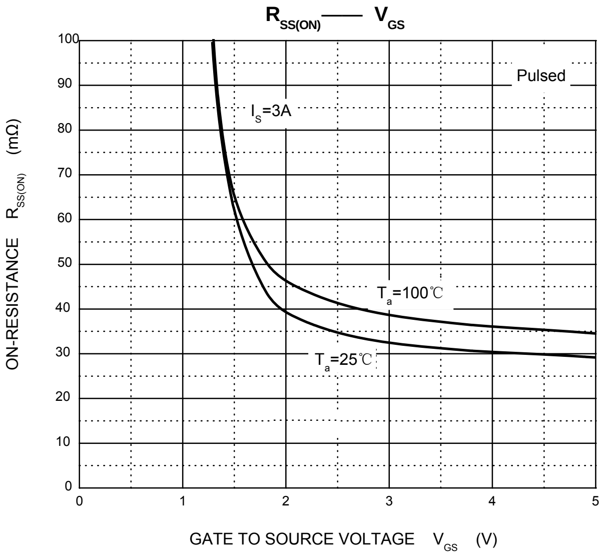
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Parameters						
Source to Source Breakdown Voltage	BV_{SSS}	I_S=250μA, V_{GS}=0V,	12			V
Zero- Gate Voltage Source Current	I_{SSS}	V_{SS}=20V, V_{GS}=0V			1	μA
Gate to Source Leakage Current	I_{GSS}	V_{SS}=0V, V_{GS}= ±8V			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{SS}=10V, I_S=250μA	0.5	0.8	1.3	V
Forward Transfer Admittance	$\|y_{gFS}\|$	V_{SS}=10V,I_S=3A	1	7		S
Static Source to Source On-Resistance	$R_{SS(on)}$	V_{GS}=4.5V,I_S=3A	14	22	28	mΩ
		V_{GS}=4.0V,I_S=3A	16	23	29	
		V_{GS}=3.8V,I_S=3A	18	24	30	
		V_{GS}=3.1V,I_S=3A	20	28	38	
		V_{GS}=2.5V,I_S=3A	22	34	48	
Turn-on Delay Time	$t_{d(on)}$	V_{SS}=10V,I_S=3A V_{GS}=4.5V		19		ns
Turn-on Rise Time	t_r			228		
Turn-Off Delay Time	$t_{d(off)}$			128		
Turn-Off Fall Time	t_f			109		
Total Gate Charge	Q_g	V_{SS}=10V,I_S=6A,V_{GS}=4.5V		7.2		nC
Diode Forward Voltage	$V_{F(S-S)}$	V_{GS}=0V,I_S=1A			1.2	V

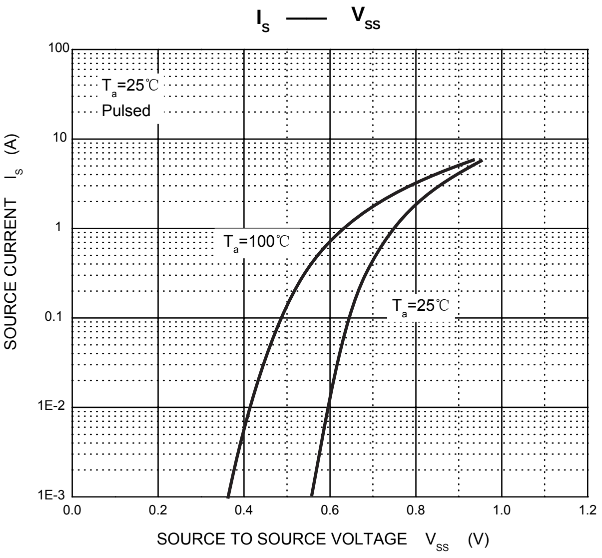
Typical Electrical and Thermal Characteristics

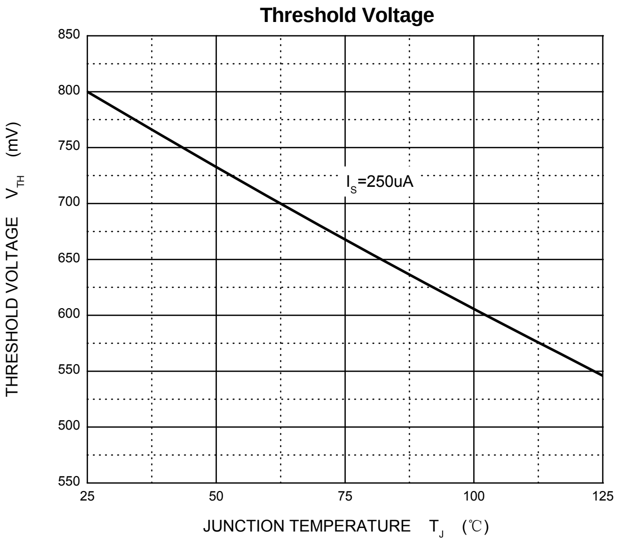

Output Characteristics


I_S —— V_GS

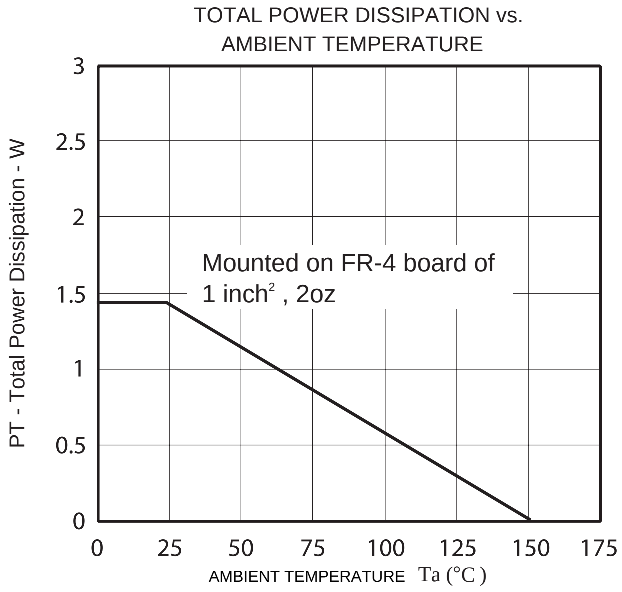

R_SS(ON) —— I_S

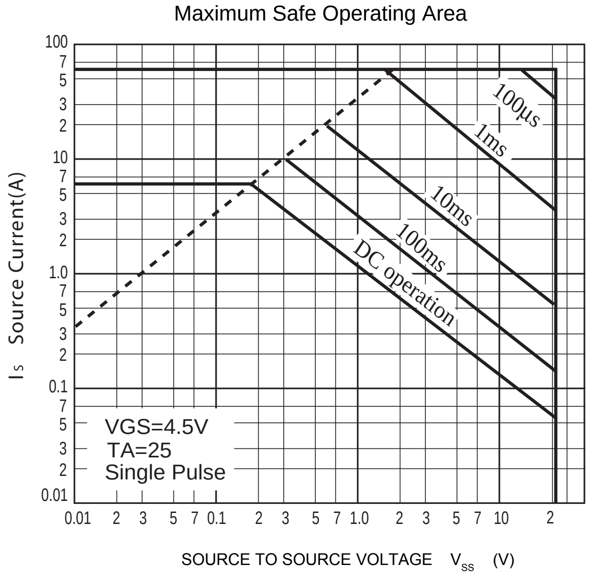

R_SS(ON) —— V_GS

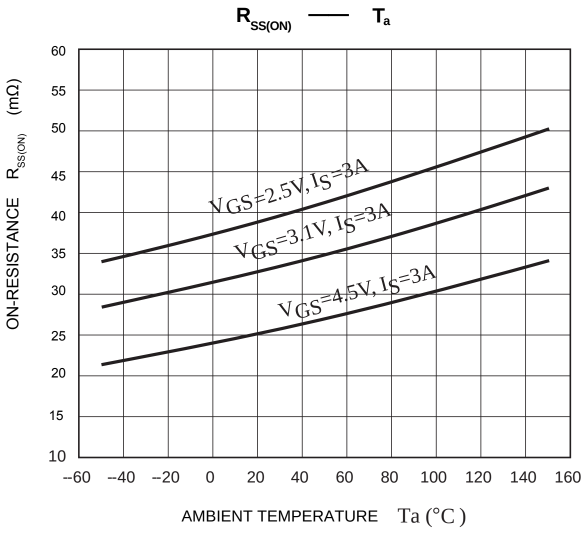

I_S —— V_SS


Threshold Voltage

Typical Electrical and Thermal Characteristics







CSPB1111-4 Package Outline Dimensions(Unit:mm)