HUASHUO SEMICONDUCTOR

HSCS2050

Dual N-Ch Fast Switching MOSFETs

Green

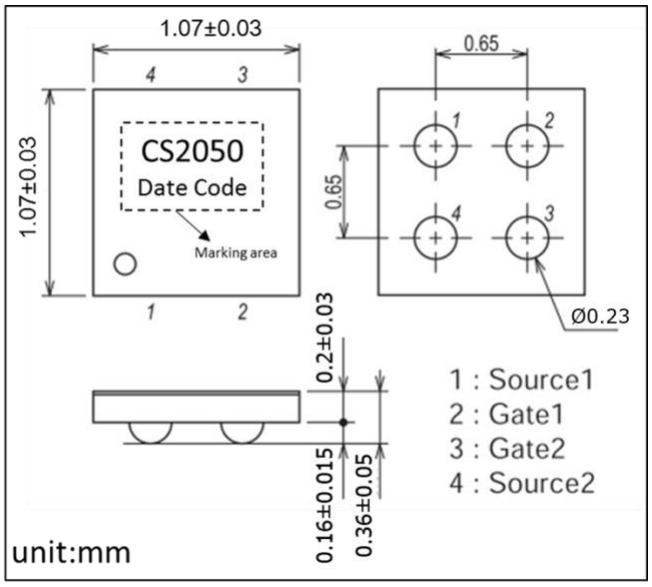
Features

★ 2.5V Drive
★ Common-drain type
★ Typical ESD Protection HBM Class 2

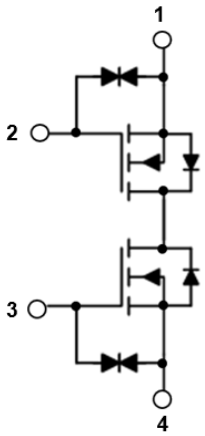
Product Summary

V_{SSS}	$R_{SS(ON)}$ Max	I_S Max
20V	36.0mΩ@ 4.5V	6A
	38.0mΩ@ 4.0V	
	48.0mΩ@ 3.1V	
	55.0mΩ@ 2.5V	

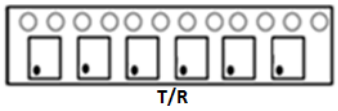
WLCSP Package Dimensions



Electrical Connection



Taping Type: T/R



Absolute Maximum Ratings (T_A=25℃)

- Package :CSP
- JEITA, JEDEC :---
- Minimum Packing Quantity:5000pcs. / reel

Absolute Maximum Ratings (T_A=25℃)

Symbol	Parameter	Rating	Units
V_{SSS}	Source to Source Voltage	20	V
V_{GSS}	Gate to Source Voltage	±12	V
I_S	Continuous Source Current$_1$	6	A
I_{SP}	Pulsed Source Current$_2$	60	A
P_T	Total Power Dissipation$_1$	1.6	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

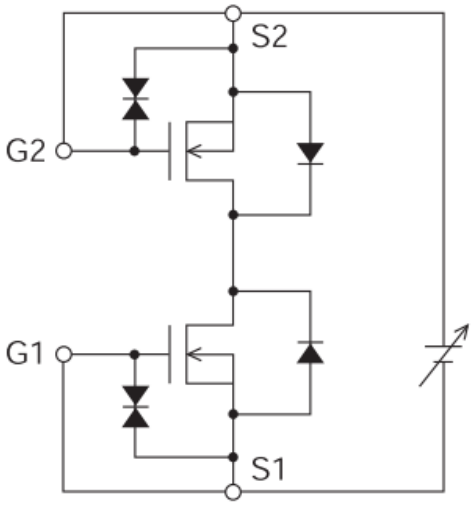
Electrical Characteristics at T_A=25℃

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{SSS}	Source-Source Breakdown Voltage	V_{GS}=0V , I_S=250uA	20	---	---	V
$R_{SS(ON)}$	Static Source-Source On-State Resistance	V_{GS}=4.5V , I_S=1.5A	23	32	36	mΩ
		V_{GS}=4.0V , I_S=1.5A	25	33	38	
		V_{GS}=3.7V , I_S=1.5A	26	34	41	
		V_{GS}=3.1V , I_S=1.5A	27	36	48	
		V_{GS}=2.5V , I_S=1.5A	31	42	55	
$V_{GS(th)}$	Gate Threshold Voltage	V_{SS}=V_{GS} , I_S =250uA	0.5	0.65	1.2	V
I_{SSS}	Zero Gate Voltage Source Current	V_{SS}=20V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±8V , V_{SS}=0V	---	---	±10	uA
Gfs	Forward Transconductance	V_{SS}=10V , I_D=3.0A	---	5.2	---	S
Q_g	Total Gate Charge[3]	V_{SS}=15V , V_{GS}=4.5V , I_S=6A	---	10.4	---	nC
$T_{d(on)}$	Turn-On Delay Time[3]	V_{DD}=10V , V_{GS}=4.5V , R_G=3.3Ω I_S=3A	---	3.2	---	ns
T_r	Rise Time[3]		---	9.8	---	
$T_{d(off)}$	Turn-Off Delay Time[3]		---	31	---	
T_f	Fall Time[3]		---	3.6	---	
V_{FSS}	Forward Source-Source Voltage	V_{GS}=0V , I_S=1.5A	---	0.72	1.1	V

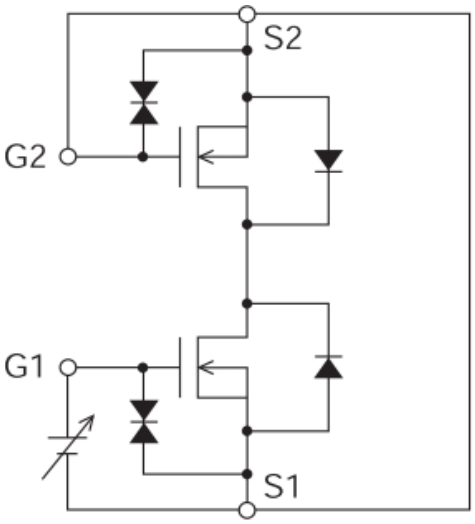
Note :
1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 10us , duty cycle ≦ 1%
3.Guaranteed by design, not subject to production testing.

Test circuits are example of measuring FET1 sides

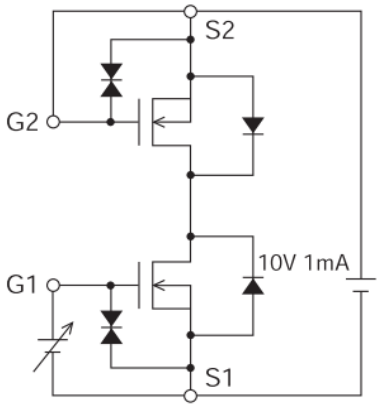
Test Circuit 1 V_{SSS} / I_{SSS}



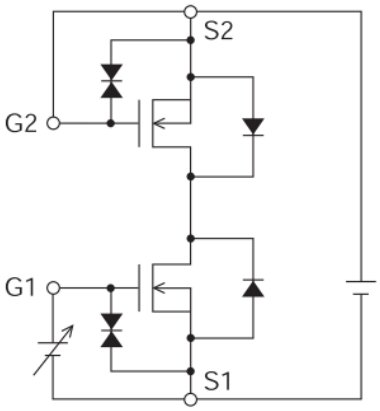
Test Circuit 2 I_{GSS}(+) / (-)



Test Circuit 3 $V_{GS(off)}$

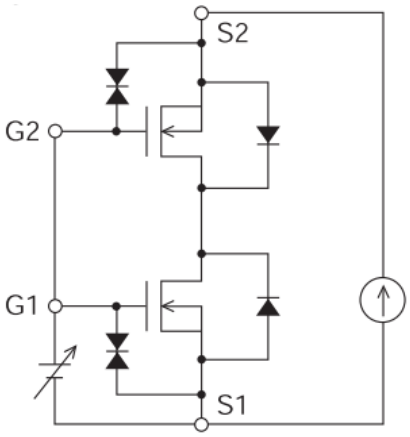


Test Circuit 4 Gfs

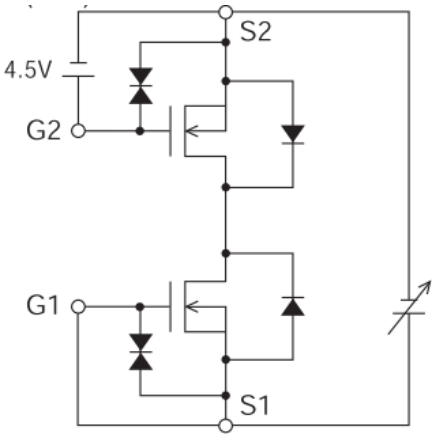


* Note: Connect the mesurement terminal reversely if you want to measure the FET2 side.

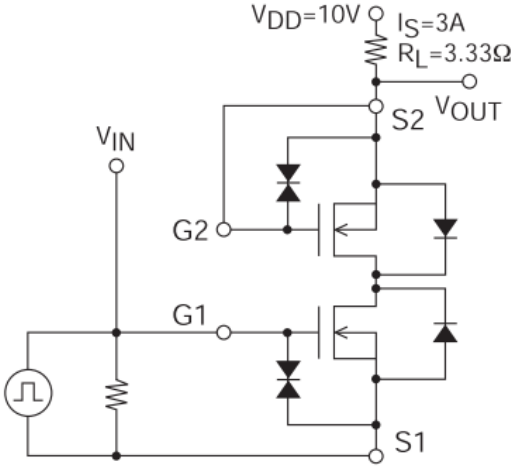
Test Circuit 5 $R_{SS(ON)}$



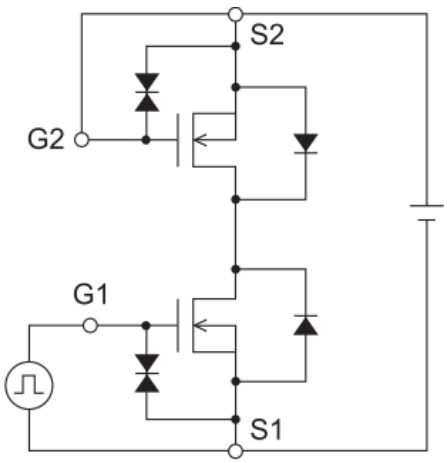
Test Circuit 6 $V_{F(S-S)}$



Test Circuit 7 Td(on), Tr, Td(off), Tf



Test Circuit 8 Qg



* Note: Connect the mesurement terminal reversely if you want to measure the FET2 side.

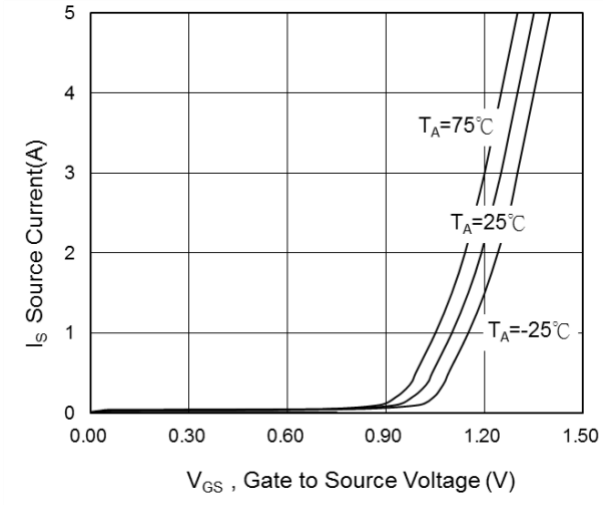


Fig.1 I_S - V_{GS}

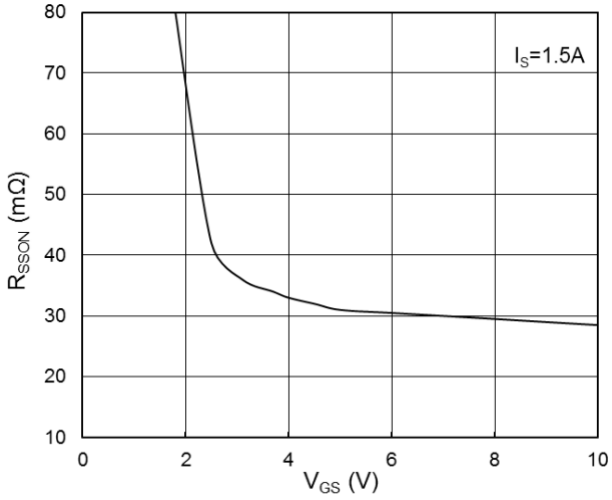


Fig.2 $R_{SS(ON)}$ - V_{GS}

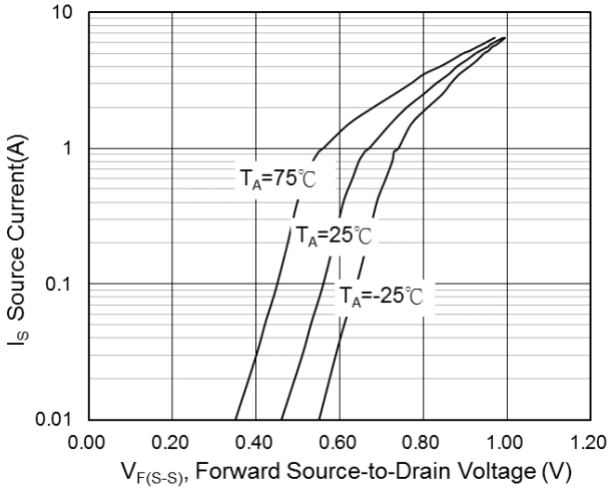


Fig.3 I_S – $V_{F(S-S)}$

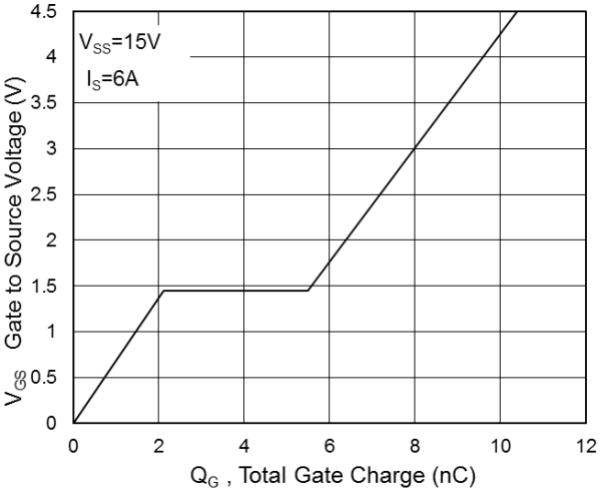


Fig.4 V_{GS} - Qg

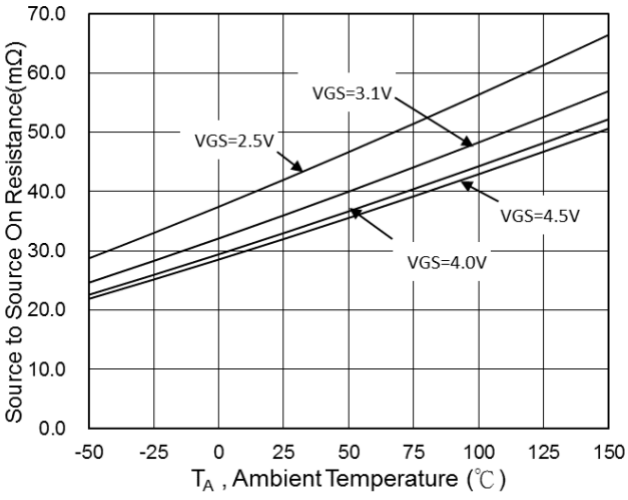


Fig.5 $R_{SS(ON)}$ - T_A

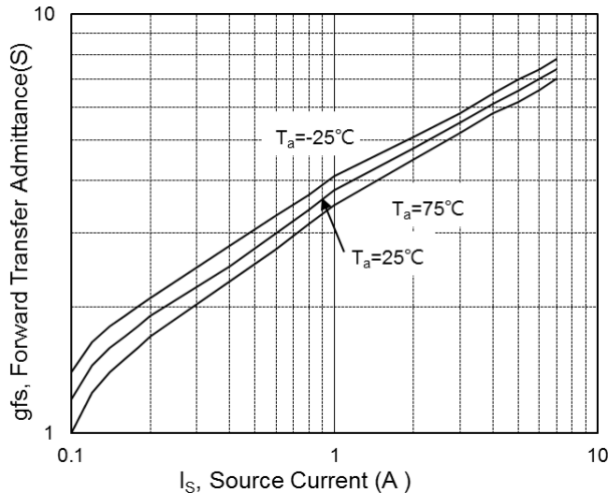


Fig.6 gfs vs I_S

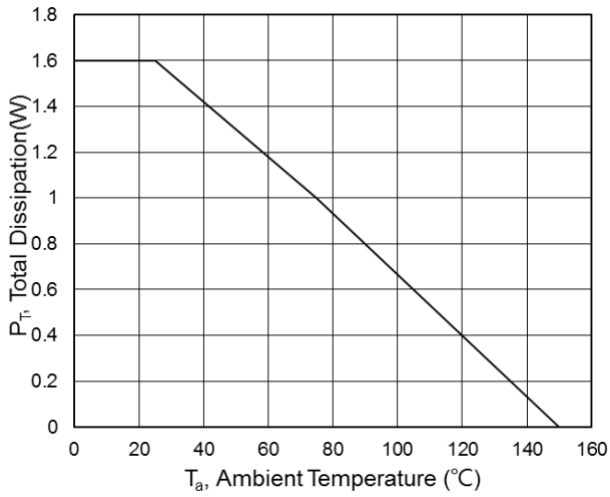


Fig.7 P_T – T_A

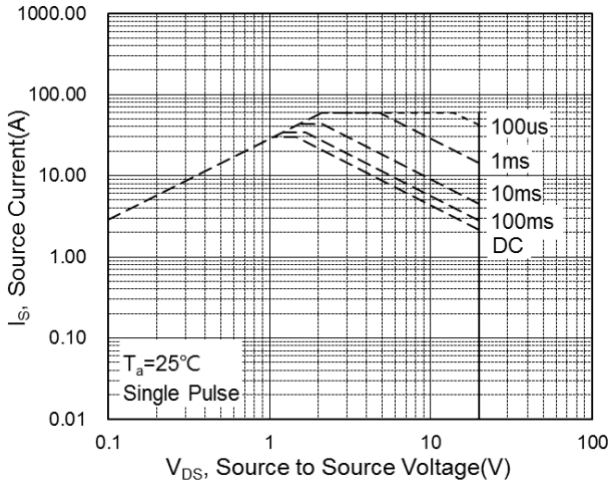


Fig.8 Safe Operating Area