DATA SHEET

N-Channel Silicon MOSFET

EFC4615R — General-Purpose Switching Device Applications

Features

- 2.5V drive
- Best suited for LiB charging and discharging switch
- Common-drain type

Specifications

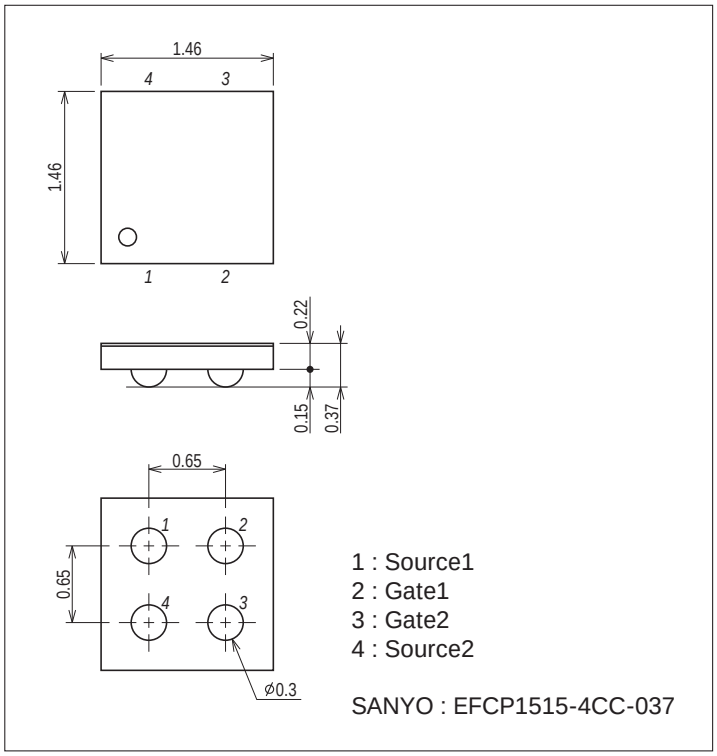
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Source-to-Source Voltage	V_{SSS}		24	V
Gate-to-Source Voltage	V_{GSS}		±12	V
Source Current (DC)	I_S		6	A
Source Current (Pulse)	I_{SP}	PW≤10μs, duty cycle≤1%	60	A
Total Dissipation	P_T	When mounted on ceramic substrate (5000mm^2×0.8mm)	1.6	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Package Dimensions

unit : mm (typ)

7067-001



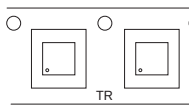
1 : Source1
2 : Gate1
3 : Gate2
4 : Source2

SANYO : EFCP1515-4CC-037

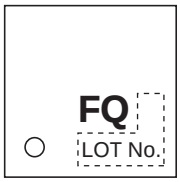
Product & Package Information

- Package : EFCP
- JEITA, JEDEC : -
- Minimum Packing Quantity : 5,000 pcs./reel

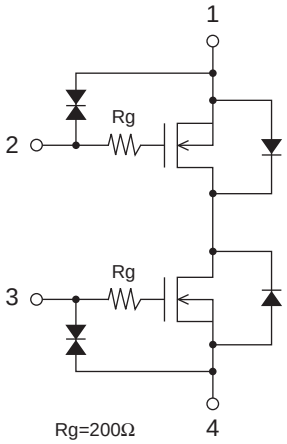
Taping Type : TR



Marking



Electrical Connection



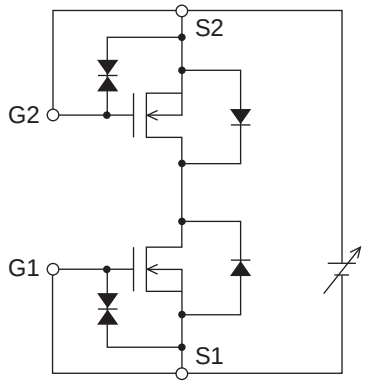
Rg=200Ω

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions		Ratings min	Ratings typ	Ratings max	Unit
Source-to-Source Breakdown Voltage	$V_{(BR)SSS}$	I_S=1mA, V_{GS}=0V	Test Circuit 1	24			V
Zero-Gate Voltage Source Current	I_{SSS}	V_{SS}=20V, V_{GS}=0V	Test Circuit 1			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{SS}=0V	Test Circuit 2			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{SS}=10V, I_S=1mA	Test Circuit 3	0.5		1.3	V
Forward Transfer Admittance	| yfs |	V_{SS}=10V, I_S=3A	Test Circuit 4		5.4		S
Static Source-to-Source On-State Resistance	R_{SS}(on)1	I_S=3A, V_{GS}=4.5V	Test Circuit 5	19	27	31	mΩ
	R_{SS}(on)2	I_S=3A, V_{GS}=4.0V	Test Circuit 5	21	28	33	mΩ
	R_{SS}(on)3	I_S=3A, V_{GS}=3.1V	Test Circuit 5	24	33	44	mΩ
	R_{SS}(on)4	I_S=3A, V_{GS}=2.5V	Test Circuit 5	28	39	52	mΩ
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.	Test Circuit 7		13		ns
Rise Time	t_r	See specified Test Circuit.	Test Circuit 7		235		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.	Test Circuit 7		335		ns
Fall Time	t_f	See specified Test Circuit.	Test Circuit 7		360		ns
Total Gate Charge	Qg	V_{SS}=10V, V_{GS}=4.5V, I_S=6A			8.8		nC
Forward Source-to-Source Voltage	$V_{F(S-S)}$	I_S=6A, V_{GS}=0V	Test Circuit 6		1	1.2	V

Test circuits are example of measuring FET1 side

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



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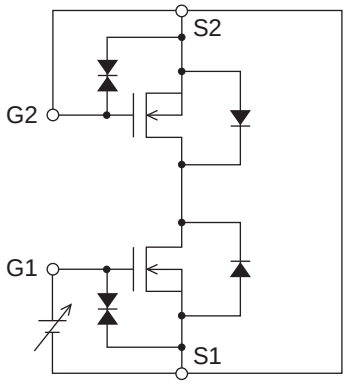
Test Circuit 2
I_{GSS}(+) / (−)



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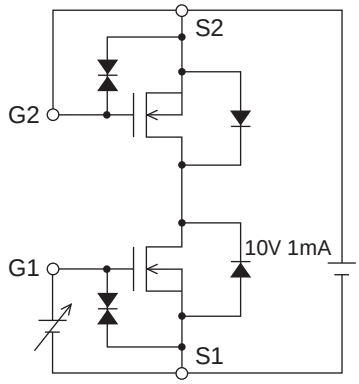
Test Circuit 3
V_{GS}(off)



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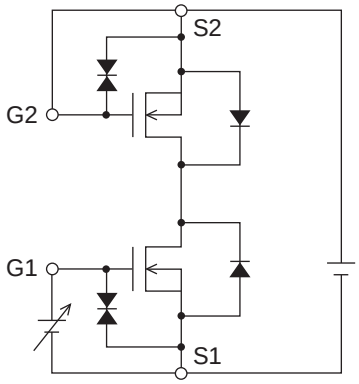
Test Circuit 4
| yfs |



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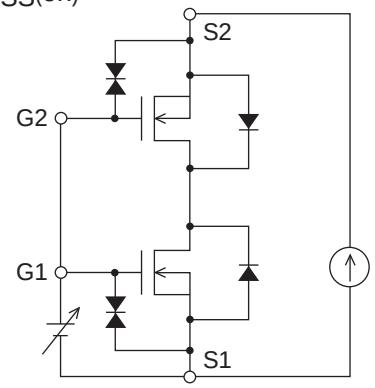
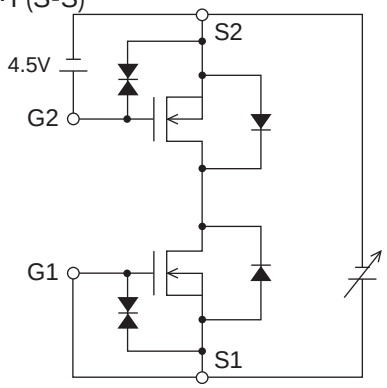
* Note: Connect the mesurement terminal reversely if you want to measure the FET2 side.

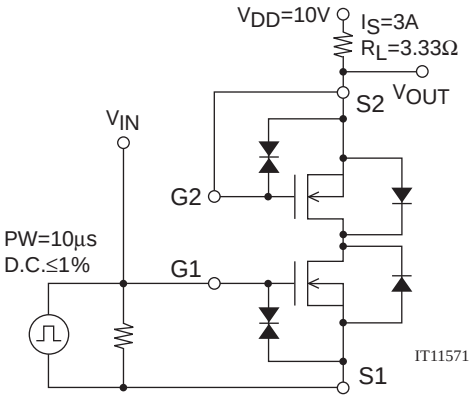
Test Circuit 5
$R_{SS}(on)$



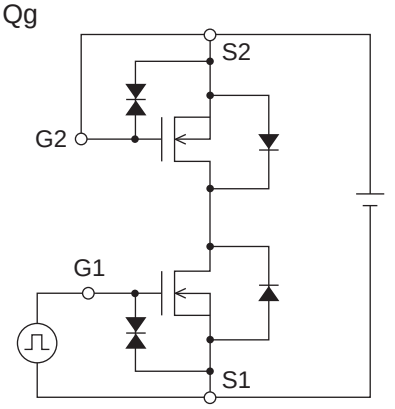
Test Circuit 6
$V_{F(S-S)}$



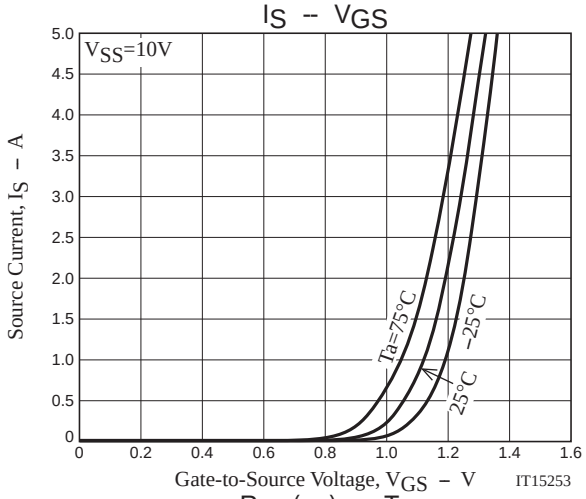
Test Circuit 7
$t_d(on)$, t_r, $t_d(off)$, t_f

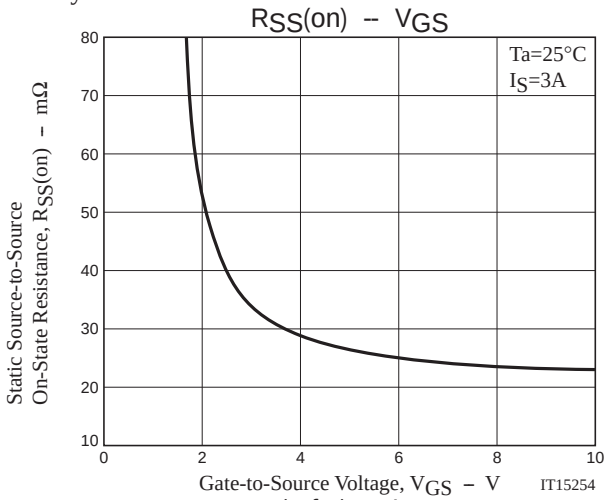


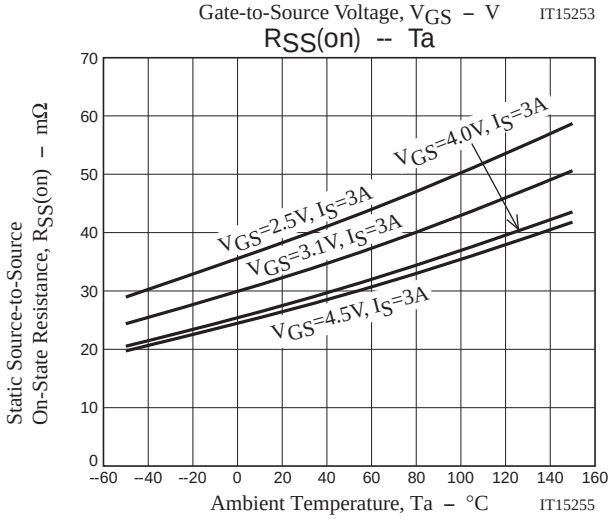
Test Circuit 8
Qg

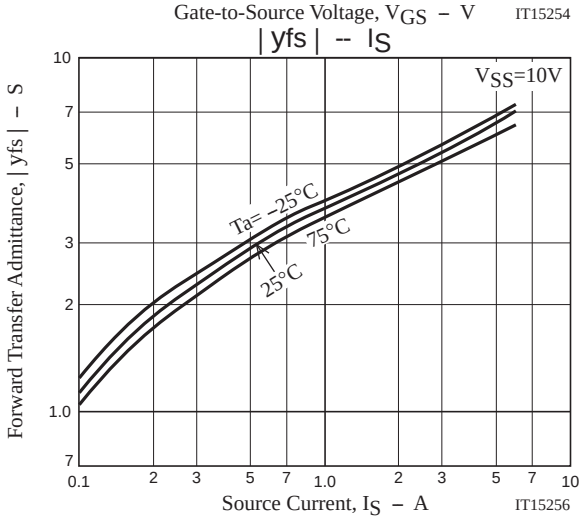


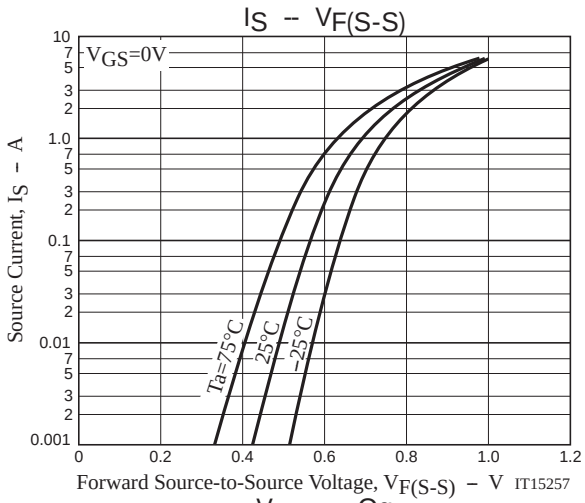
* Note: Connect the mesurement terminal reversely if you want to measure the FET2 side.

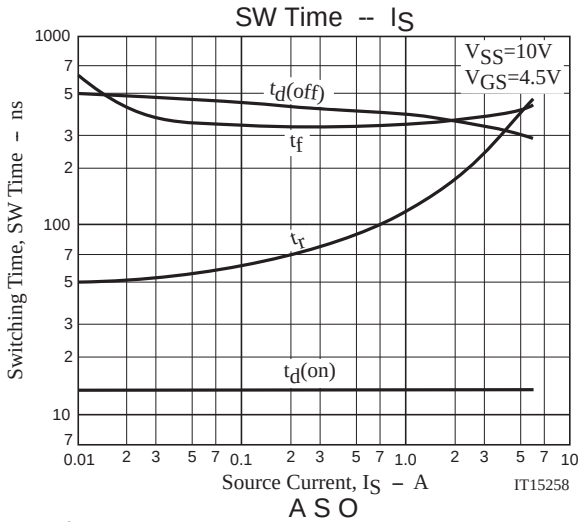


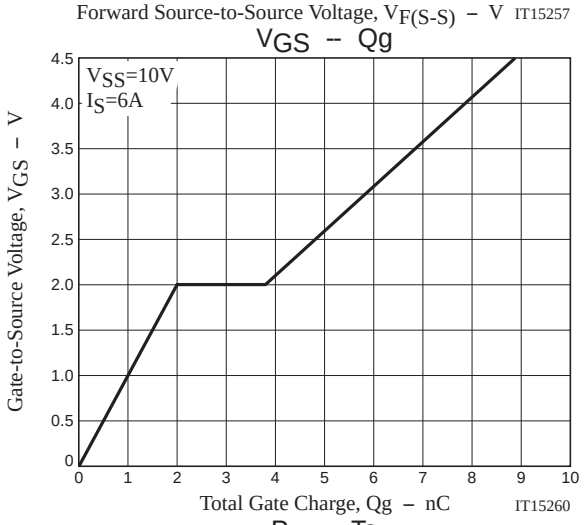


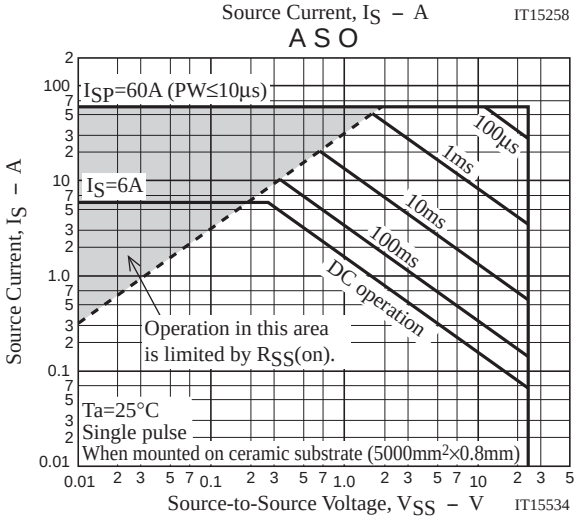


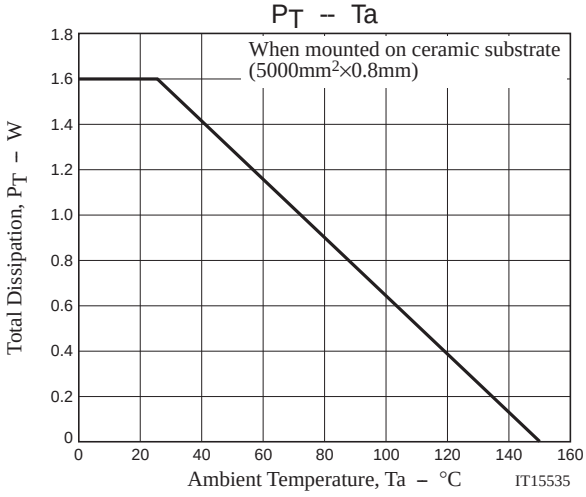



IS -- VF(S-S)
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Forward Source-to-Source Voltage, VF(S-S) – V
IT15257


SW Time -- IS
VSS=10V
VGS=4.5V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Source Current, IS – A
IT15258


VGS -- Qg
VSS=10V
IS=6A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT15260


A S O
ISP=60A (PW≤10μs)
IS=6A
100μs
1ms
10ms
100ms
DC operation
Operation in this area
is limited by RSS(on).
Ta=25°C
Single pulse
When mounted on ceramic substrate (5000mm2×0.8mm)
Source Current, IS – A
Source-to-Source Voltage, VSS – V
IT15534


PT -- Ta
When mounted on ceramic substrate
(5000mm2×0.8mm)
Total Dissipation, PT – W
Ambient Temperature, Ta – °C
IT15535