



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

# EFC4618R — General-Purpose Switching Device Applications

## Features

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

## Specifications

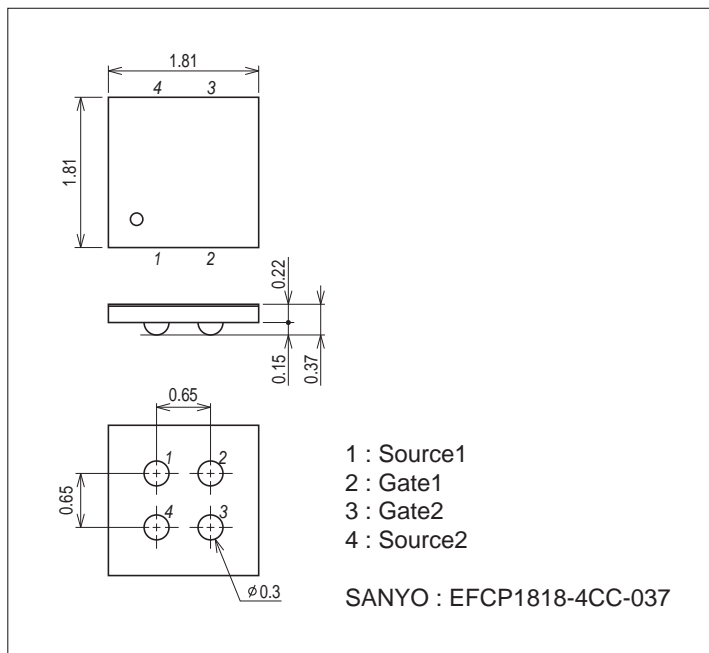
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Source-to-Source Voltage	V <sub>SSS</sub>		24	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±12	V
Source Current (DC)	I <sub>S</sub>		6	A
Source Current (Pulse)	I <sub>SP</sub>	PW≤10μs, duty cycle≤1%	60	A
Total Dissipation	P <sub>T</sub>	When mounted on ceramic substrate (5000mm <sup>2</sup> ×0.8mm)	1.6	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

## Package Dimensions

unit : mm (typ)

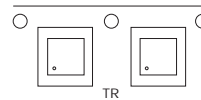
7069-001



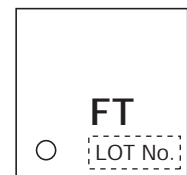
## Product & Package Information

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

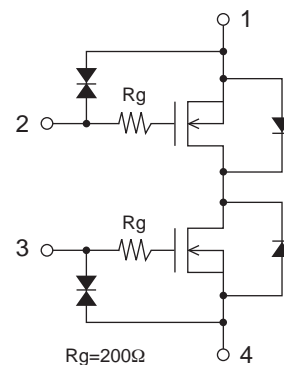
## Packing Type : TR



## Marking



## Electrical Connection



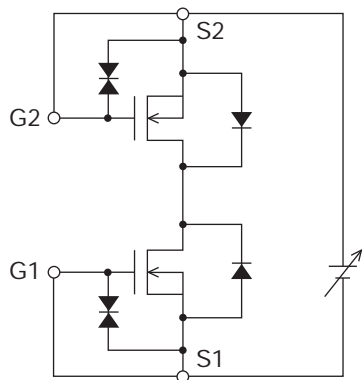
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions		Ratings			Unit
				min	typ	max	
Source-to-Source Breakdown Voltage	V(BR)SSS	IS=1mA, VGS=0V	Test Circuit 1	24			V
Zero-Gate Voltage Source Current	ISSS	VSS=20V, VGS=0V	Test Circuit 1			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VSS=0V	Test Circuit 2			±10	μA
Cutoff Voltage	VGS(off)	VSS=10V, IS=1mA	Test Circuit 3	0.5		1.3	V
Forward Transfer Admittance	yfs	VSS=10V, IS=3A	Test Circuit 4		6.5		S
Static Source-to-Source On-State Resistance	RSS(on)1	IS=3A, VGS=4.5V	Test Circuit 5	13.5	19.8	23	mΩ
	RSS(on)2	IS=3A, VGS=4.0V	Test Circuit 5	14	20.5	24	mΩ
	RSS(on)3	IS=3A, VGS=3.7V	Test Circuit 5	14.5	21	25.5	mΩ
	RSS(on)4	IS=3A, VGS=3.1V	Test Circuit 5	14.9	23	30	mΩ
	RSS(on)5	IS=3A, VGS=2.5V	Test Circuit 5	18.5	27	35	mΩ
Turn-ON Delay Time	td(on)	See specified Test Circuit.	Test Circuit 7		200		ns
Rise Time	tr	See specified Test Circuit.	Test Circuit 7		815		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.	Test Circuit 7		1840		ns
Fall Time	tf	See specified Test Circuit.	Test Circuit 7		1770		ns
Total Gate Charge	Qg	VSS=10V, VGS=4.5V, IS=6A			25.4		nC
Forward Source-to-Source Voltage	VF(S-S)	IS=3A, VGS=0V	Test Circuit 6		0.76	1.2	V

Test circuits are example of measuring FET1 side

Test Circuit 1

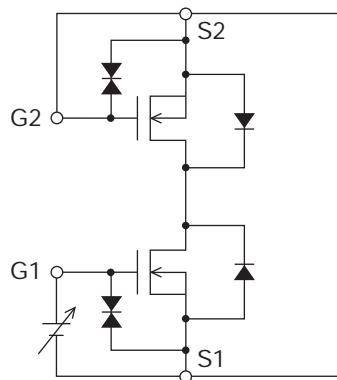
$V_{SSS} / I_{SSS}$



IT11565

Test Circuit 2

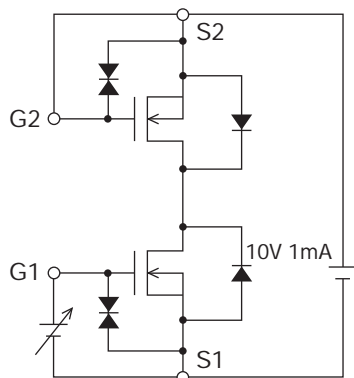
$I_{GSS}(+) / (-)$



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Test Circuit 3

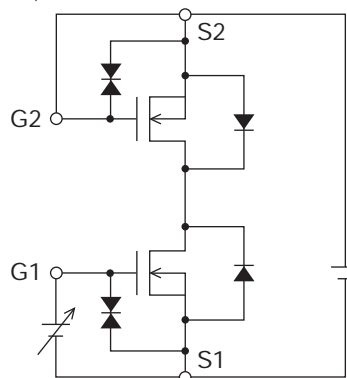
$V_{GS(off)}$



IT11567

Test Circuit 4

$|y_{fs}|$

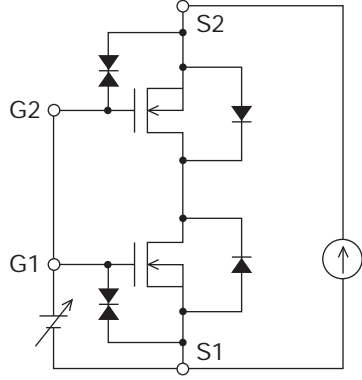


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\* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.

Test Circuit 5

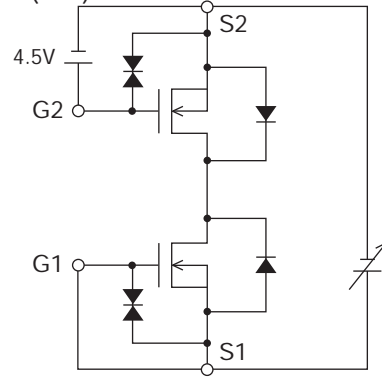
$R_{SS(on)}$



IT11569

Test Circuit 6

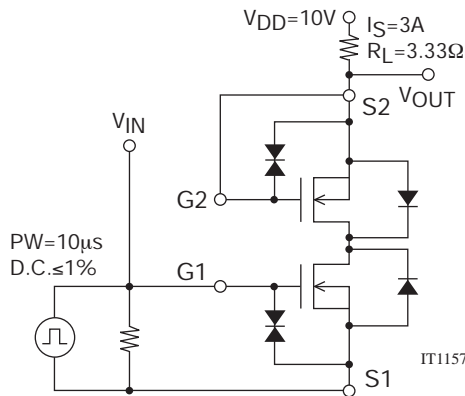
$V_{F(S-S)}$



IT11570

Test Circuit 7

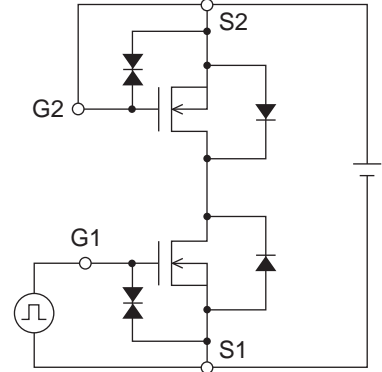
$t_d(on)$ ,  $t_r$ ,  $t_d(off)$ ,  $t_f$



IT11571

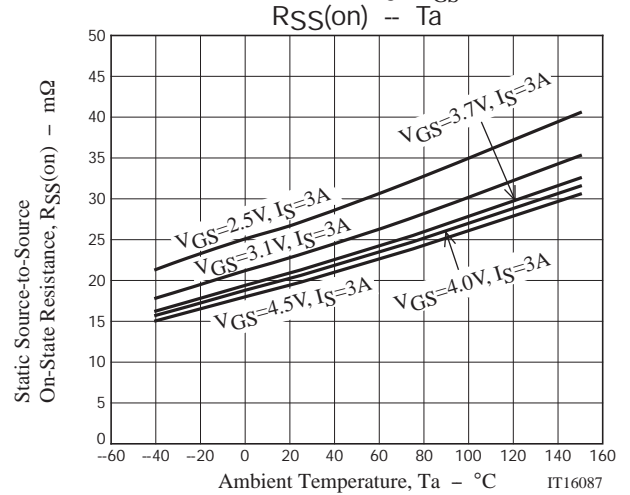
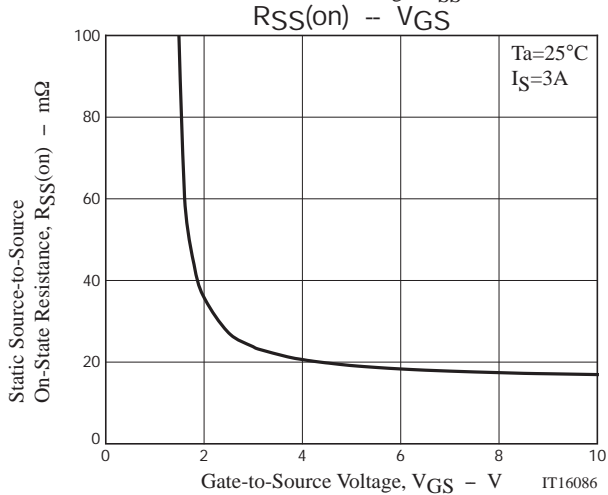
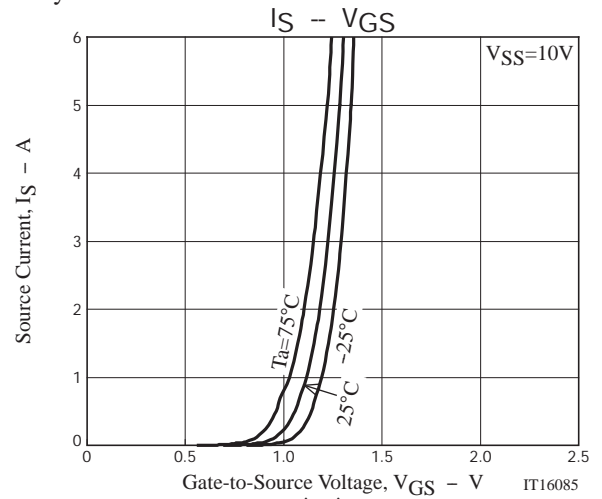
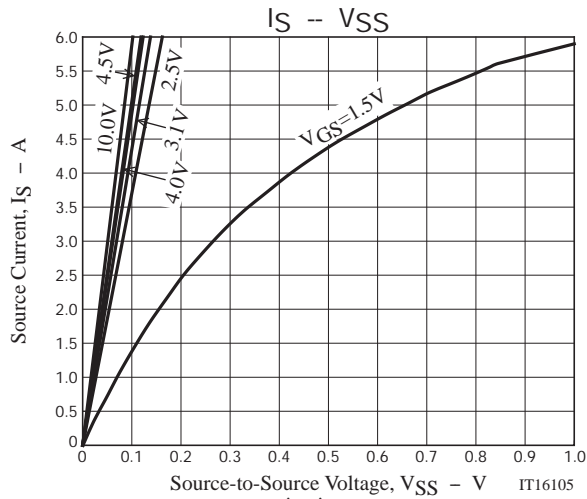
Test Circuit 8

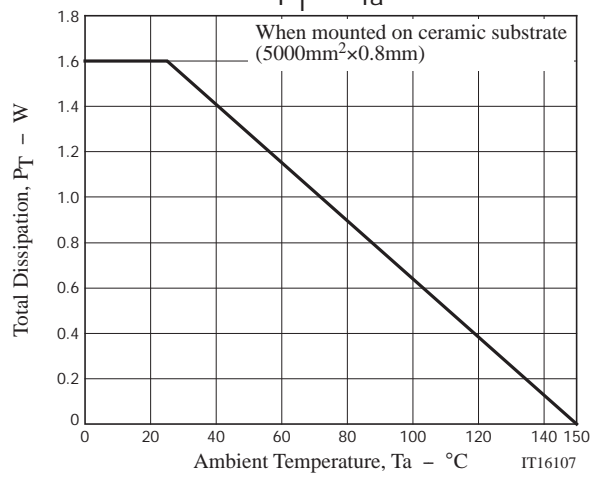
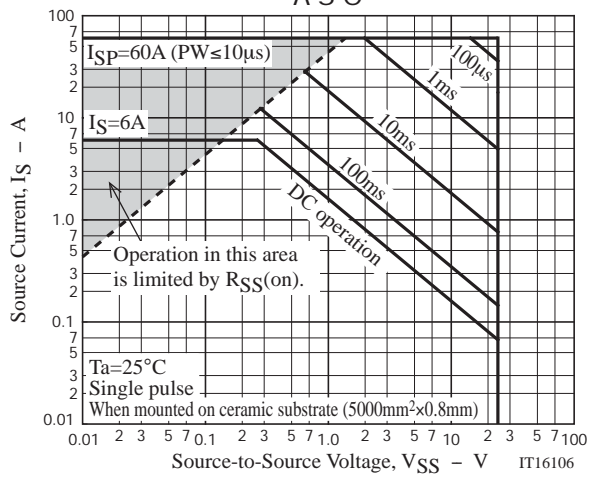
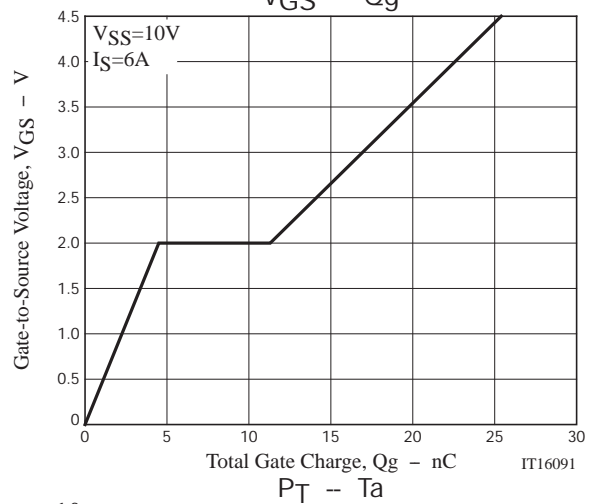
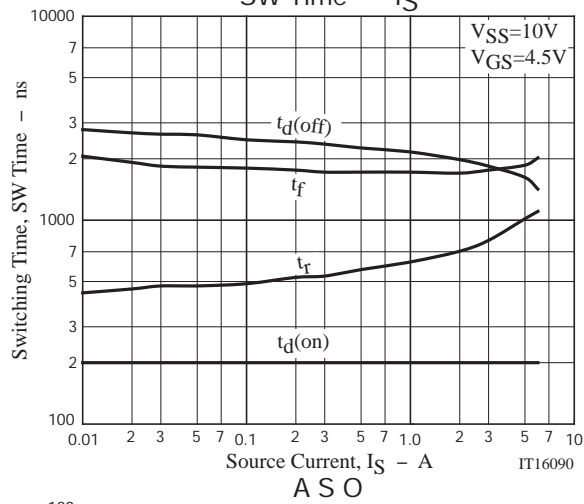
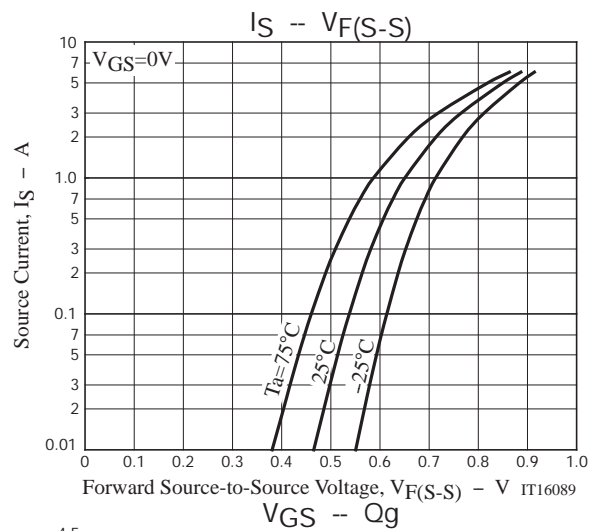
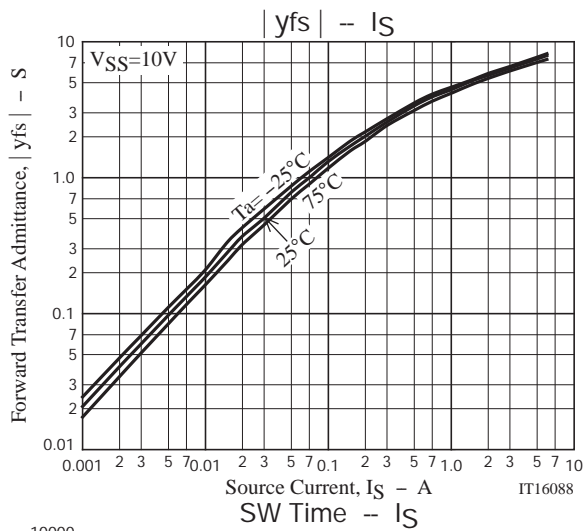
$Q_g$



IT15409

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





Note on usage : Since the EFC4618R is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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