



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## EFC4618R-P — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

### Features

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

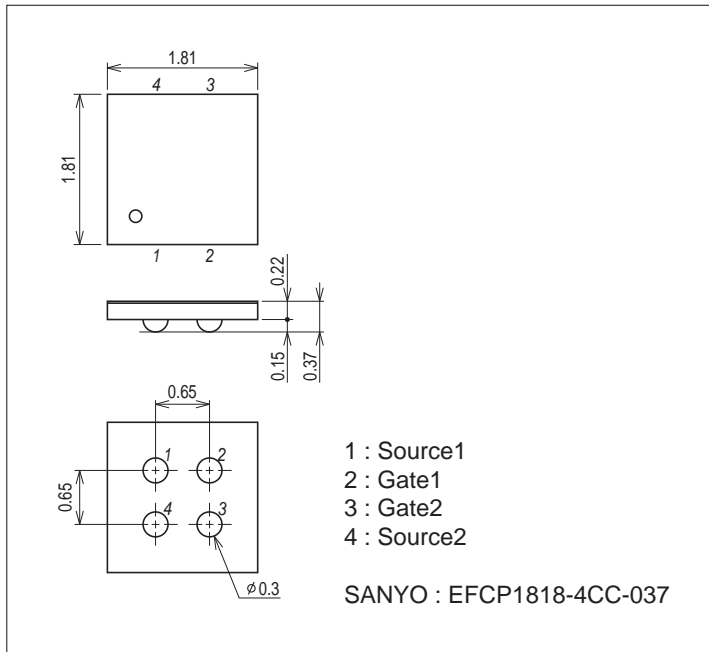
### Specifications

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

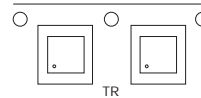
unit : mm (typ)  
7069-001



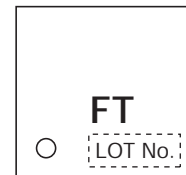
### Product & Package Information

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

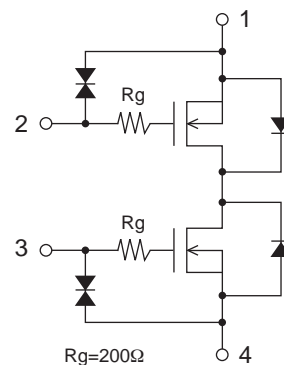
### Packing Type : TR



### Marking



### Electrical Connection



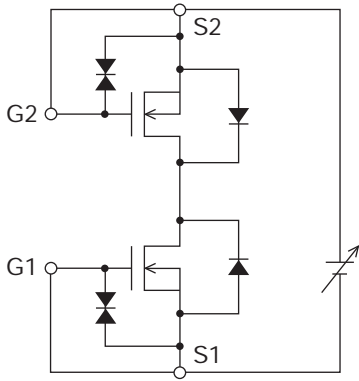
# EFC4618R-P

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit	
			min	typ	max		
Source-to-Source Breakdown Voltage	V(BR)SSS	I <sub>S</sub> =1mA, V <sub>GS</sub> =0V	Test Circuit 1	24		V	
Zero-Gate Voltage Source Current	I <sub>SSS</sub>	V <sub>SS</sub> =20V, V <sub>GS</sub> =0V	Test Circuit 1		1	μA	
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>SS</sub> =0V	Test Circuit 2		±10	μA	
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>SS</sub> =10V, I <sub>S</sub> =1mA	Test Circuit 3	0.5	1.3	V	
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>SS</sub> =10V, I <sub>S</sub> =3A	Test Circuit 4		6.5	S	
Static Source-to-Source On-State Resistance	R <sub>SS(on)1</sub>	I <sub>S</sub> =3A, V <sub>GS</sub> =4.5V	Test Circuit 5	13.5	19.8	23	mΩ
	R <sub>SS(on)2</sub>	I <sub>S</sub> =3A, V <sub>GS</sub> =4.0V	Test Circuit 5	14	20.5	24	mΩ
	R <sub>SS(on)3</sub>	I <sub>S</sub> =3A, V <sub>GS</sub> =3.7V	Test Circuit 5	14.5	21	25.5	mΩ
	R <sub>SS(on)4</sub>	I <sub>S</sub> =3A, V <sub>GS</sub> =3.1V	Test Circuit 5	14.9	23	30	mΩ
	R <sub>SS(on)5</sub>	I <sub>S</sub> =3A, V <sub>GS</sub> =2.5V	Test Circuit 5	18.5	27	35	mΩ
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.	Test Circuit 7		200	ns	
Rise Time	t <sub>r</sub>	See specified Test Circuit.	Test Circuit 7		815	ns	
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.	Test Circuit 7		1840	ns	
Fall Time	t <sub>f</sub>	See specified Test Circuit.	Test Circuit 7		1770	ns	
Total Gate Charge	Q <sub>g</sub>	V <sub>SS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>S</sub> =6A			25.4	nC	
Forward Source-to-Source Voltage	V <sub>F(S-S)</sub>	I <sub>S</sub> =3A, V <sub>GS</sub> =0V	Test Circuit 6		0.76	1.2	V

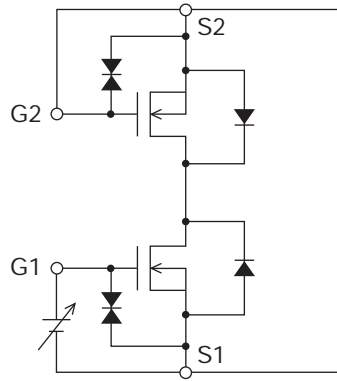
Test circuits are example of measuring FET1 side

Test Circuit 1  
V<sub>SSS</sub> / I<sub>SSS</sub>



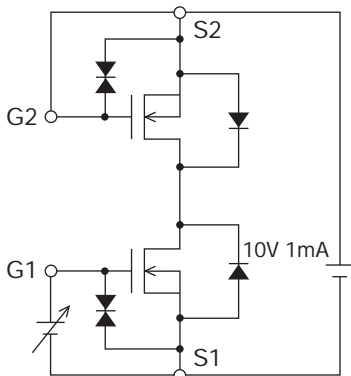
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Test Circuit 2  
I<sub>GSS</sub>(+) / (-)



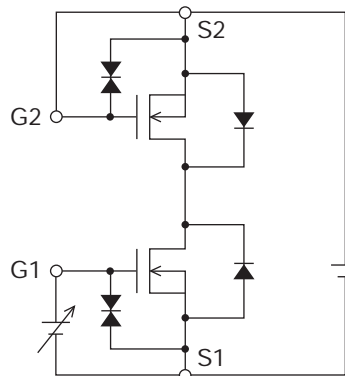
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Test Circuit 3  
V<sub>GS(off)</sub>



IT11567

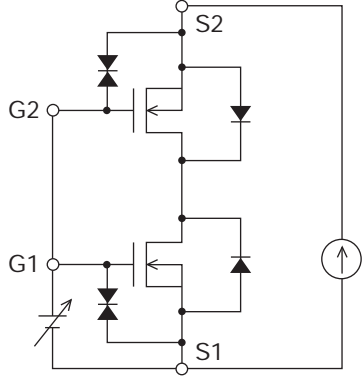
Test Circuit 4  
|y<sub>fs</sub>|



IT11568

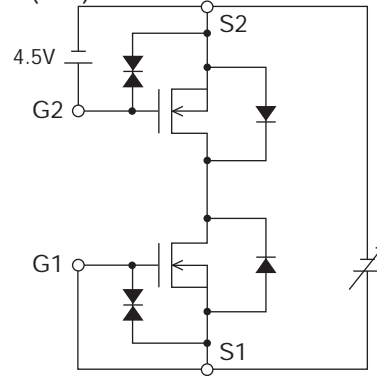
\* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.

Test Circuit 5  
RSS(on)



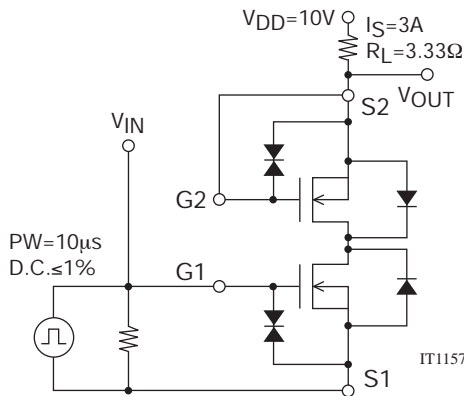
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Test Circuit 6  
VF(S-S)



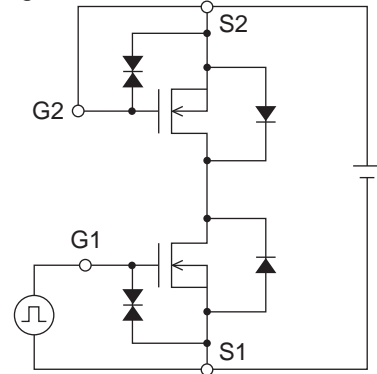
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Test Circuit 7  
td(on), tr, td(off), tf



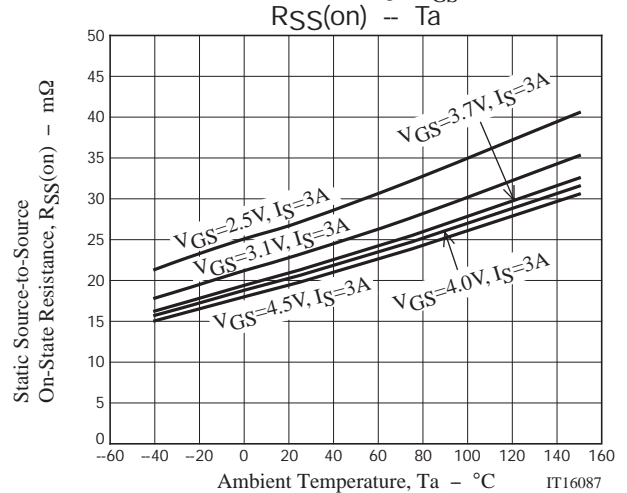
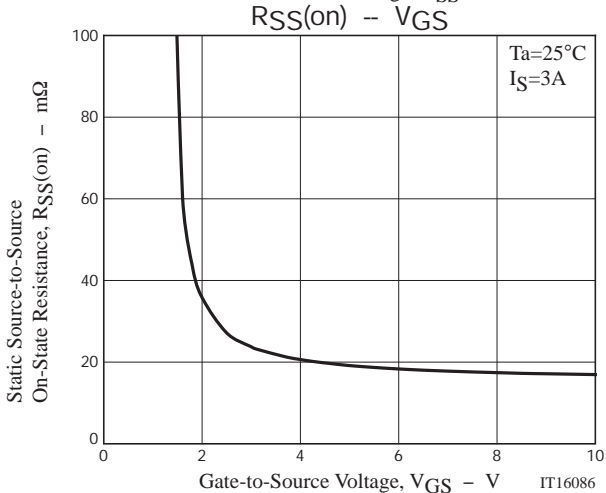
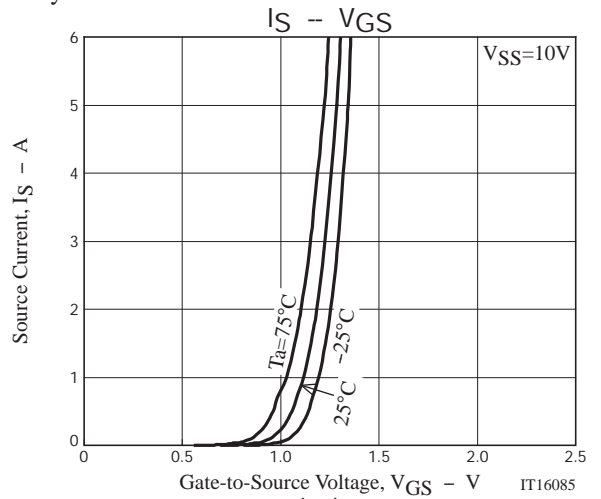
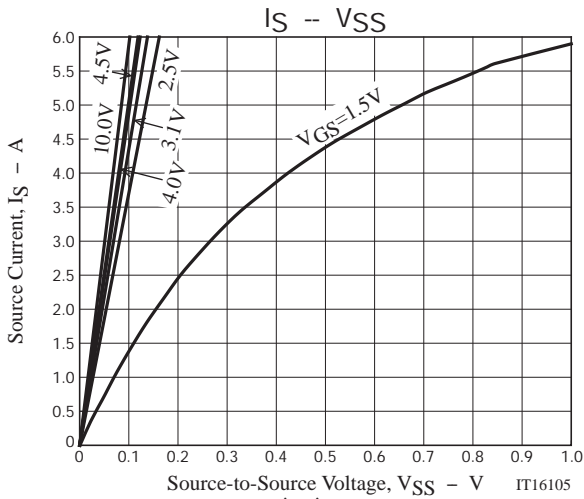
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Test Circuit 8  
Qg

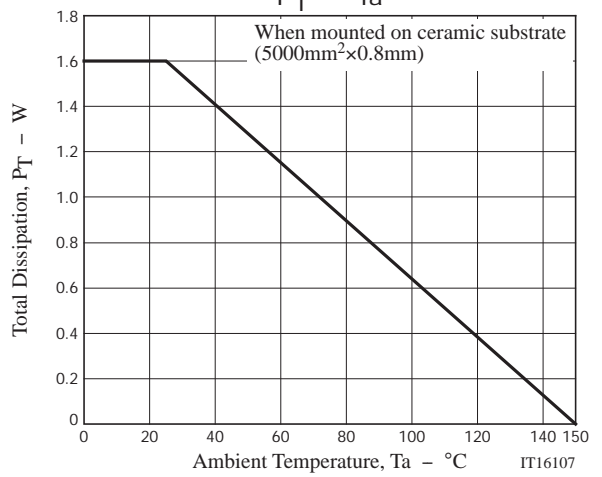
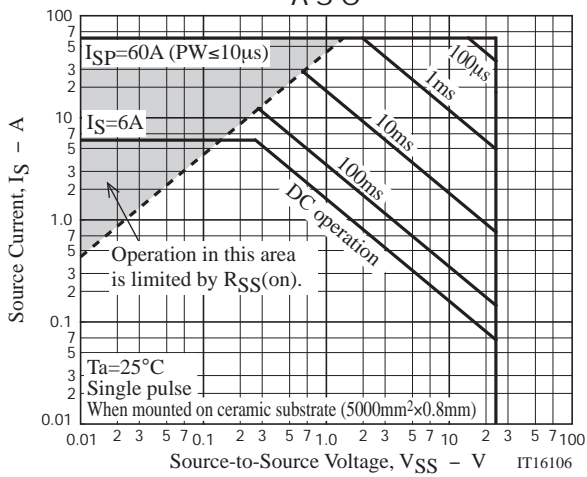
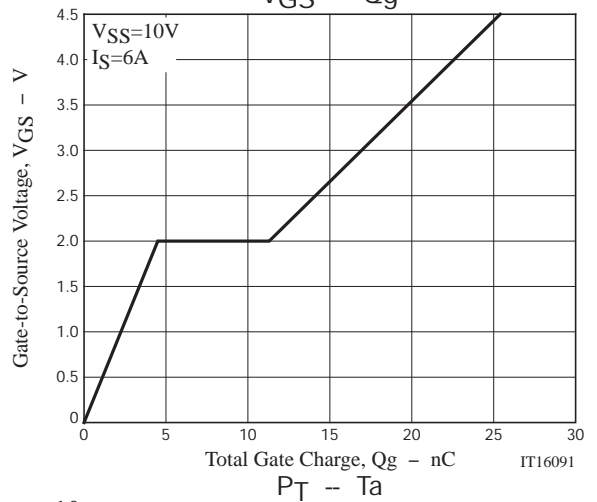
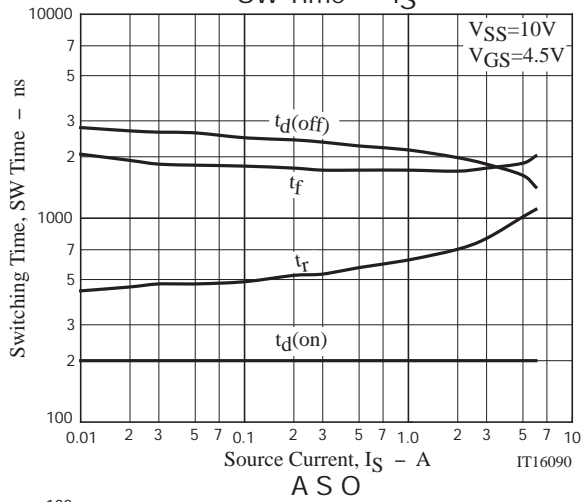
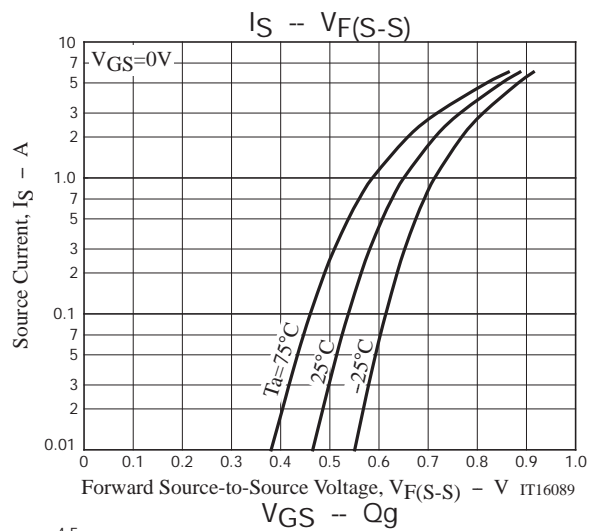
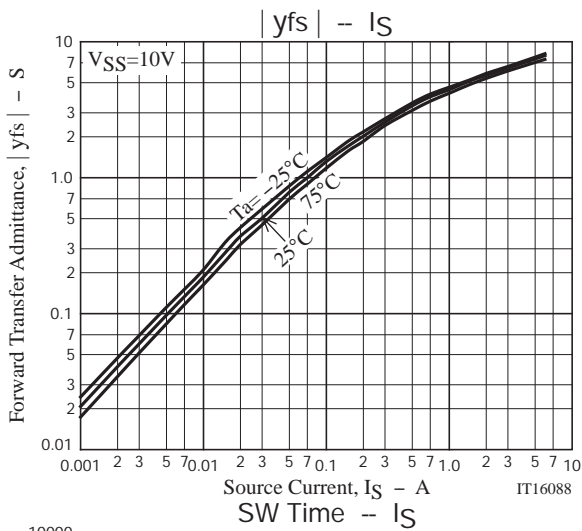


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\* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.



# EFC4618R-P



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

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