



# EFC4615R — N-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

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

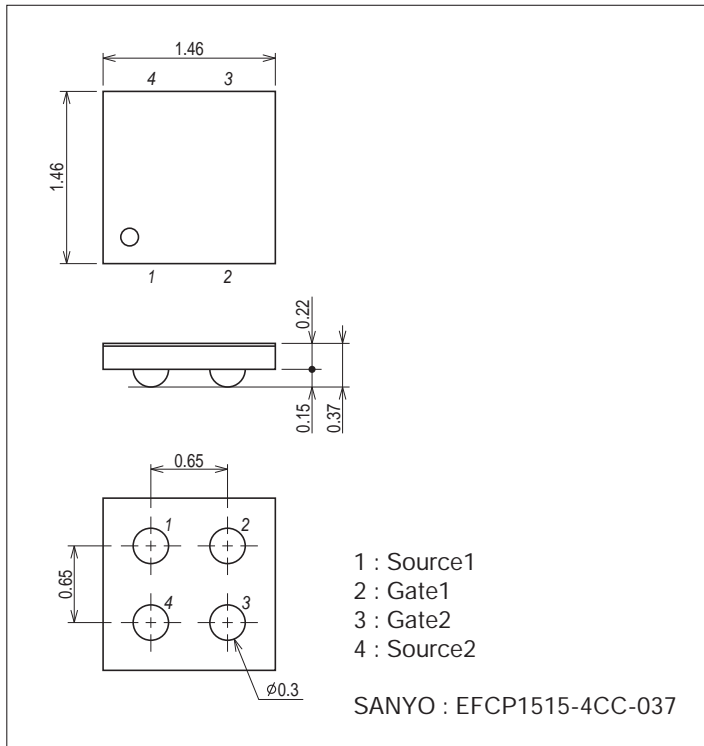
### Specifications

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

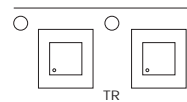
unit : mm (typ)  
7067-001



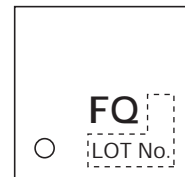
### Product & Package Information

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

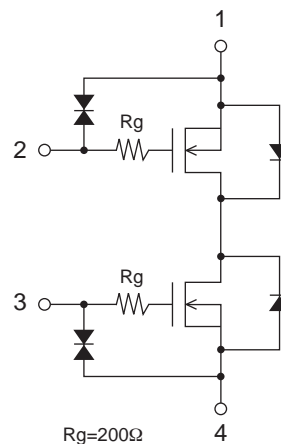
Taping Type : TR



Marking



### Electrical Connection



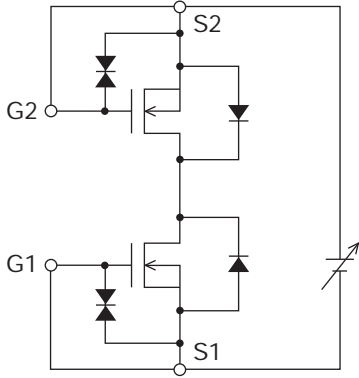
# EFC4615R

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8V, V_{SS}=0V$ Test Circuit 2			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{SS}=10V, I_S=1mA$ Test Circuit 3	0.5		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{SS}=10V, I_S=3A$ 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	$m\Omega$
	$R_{SS(on)2}$	$I_S=3A, V_{GS}=4.0V$ Test Circuit 5	21	28	33	$m\Omega$
	$R_{SS(on)3}$	$I_S=3A, V_{GS}=3.1V$ Test Circuit 5	24	33	44	$m\Omega$
	$R_{SS(on)4}$	$I_S=3A, V_{GS}=2.5V$ Test Circuit 5	28	39	52	$m\Omega$
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	$Q_g$	$V_{SS}=10V, V_{GS}=4.5V, I_S=6A$		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

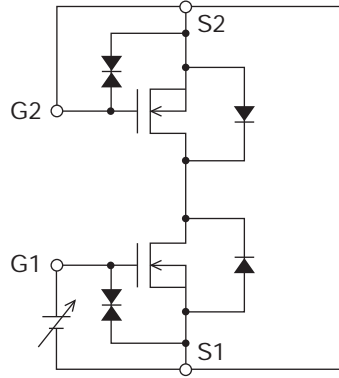
Test circuits are example of measuring FET1 side

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



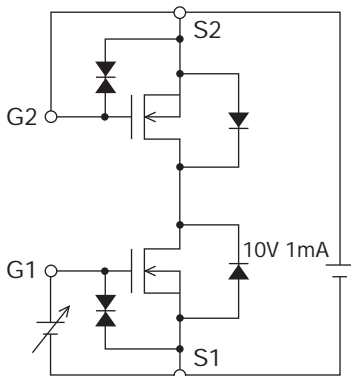
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Test Circuit 2  
 $I_{GSS(+)} / (-)$



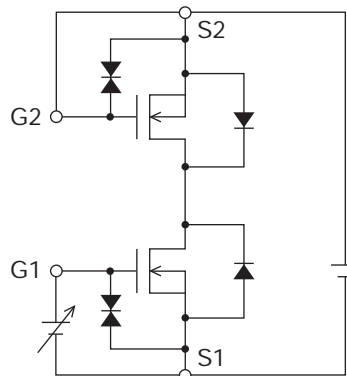
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Test Circuit 3  
 $V_{GS(off)}$



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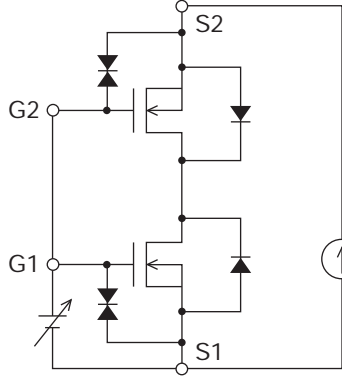
Test Circuit 4  
 $|y_{fs}|$



IT11568

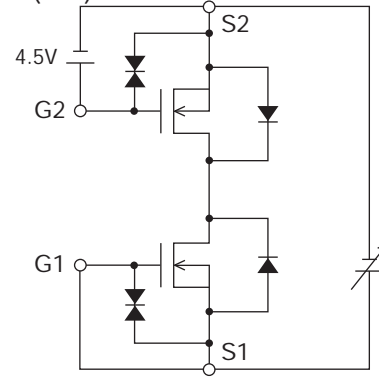
\* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.

Test Circuit 5  
RSS(on)



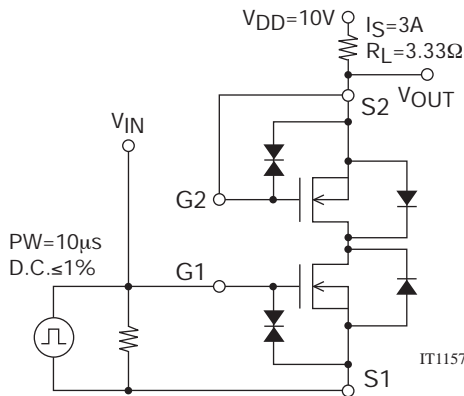
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Test Circuit 6  
VF(S-S)



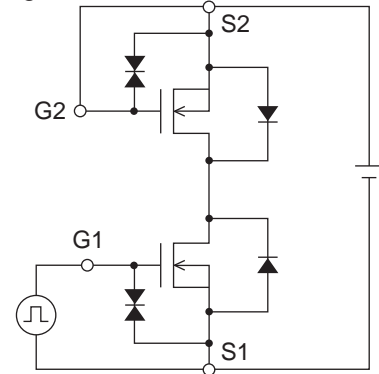
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Test Circuit 7  
td(on), tr, td(off), tf



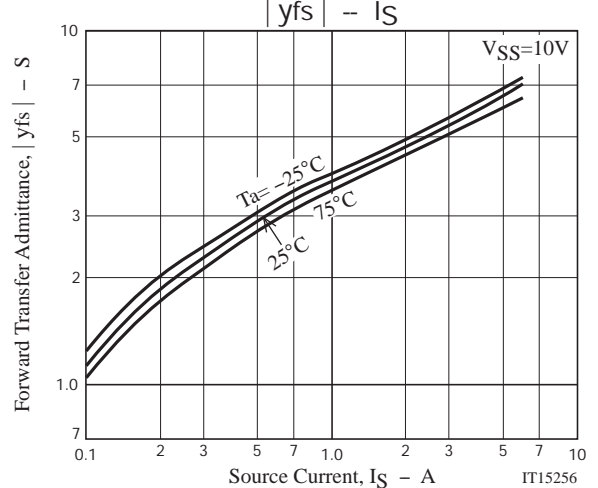
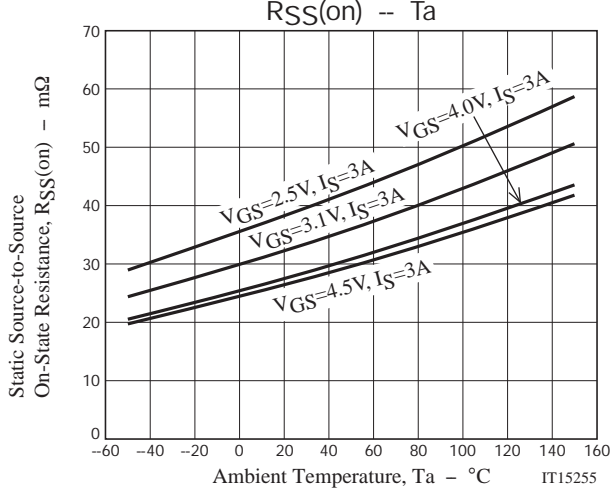
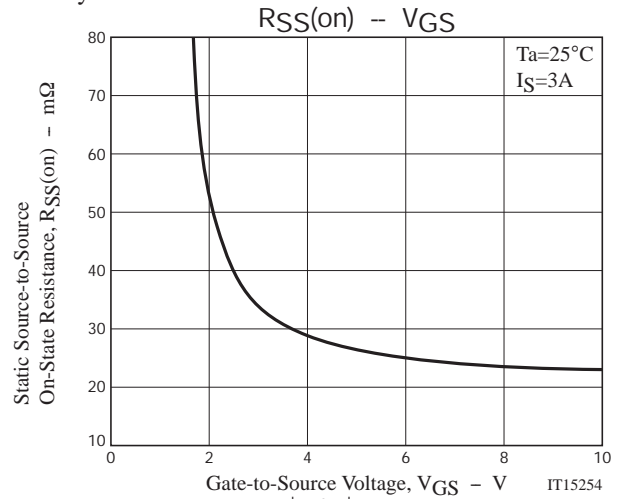
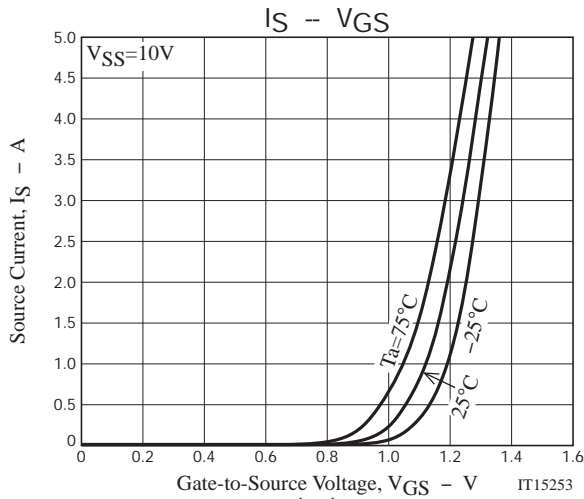
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Test Circuit 8  
Qg

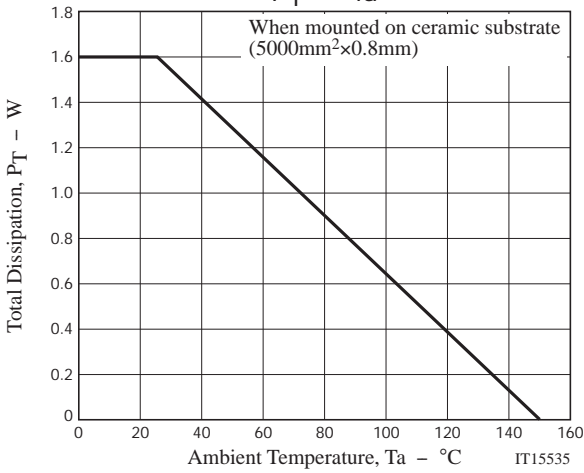
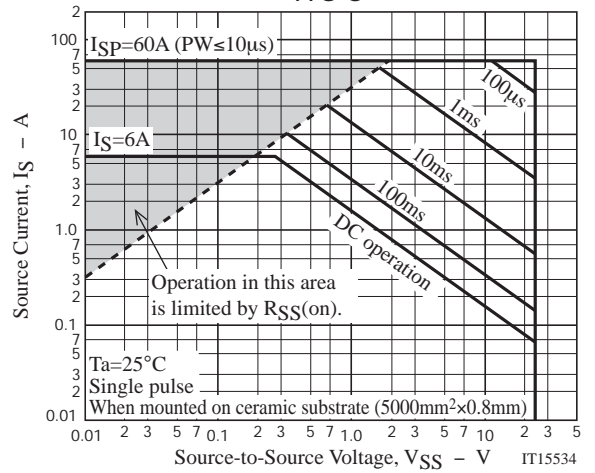
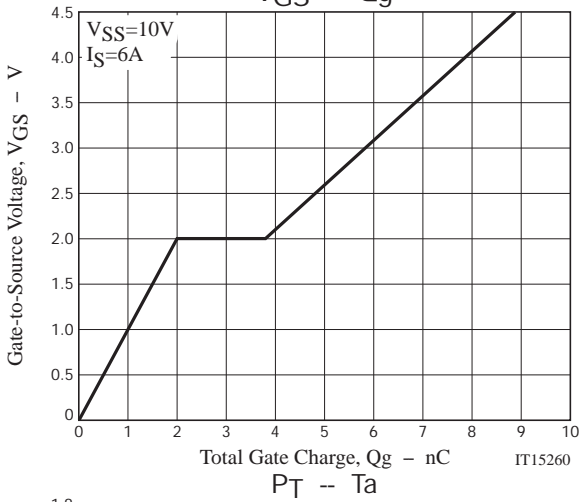
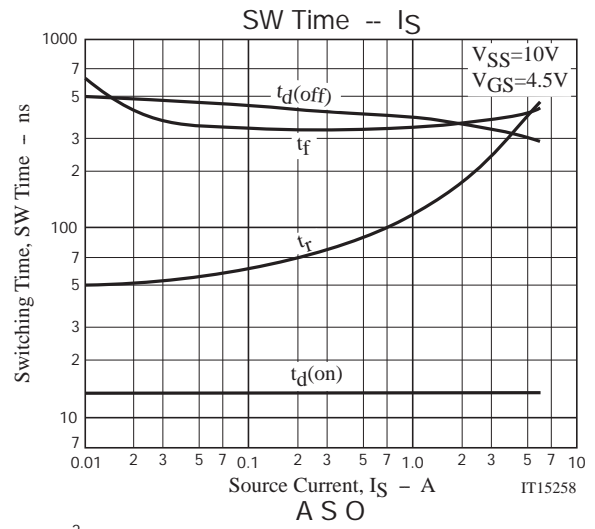
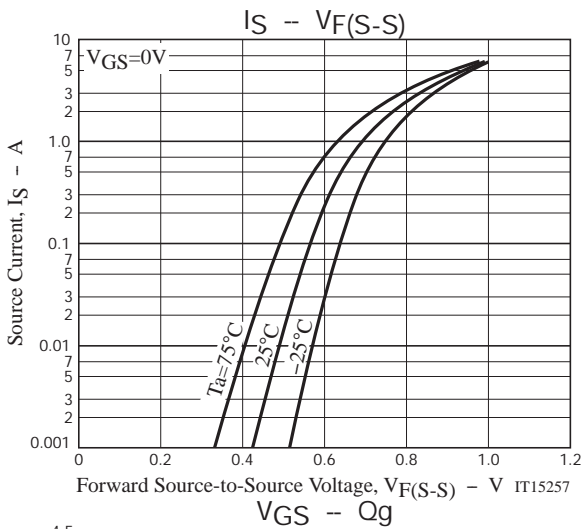


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\* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.



# EFC4615R



Note on usage : Since the EFC4615R is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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