



SANYO Semiconductors

DATA SHEET

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

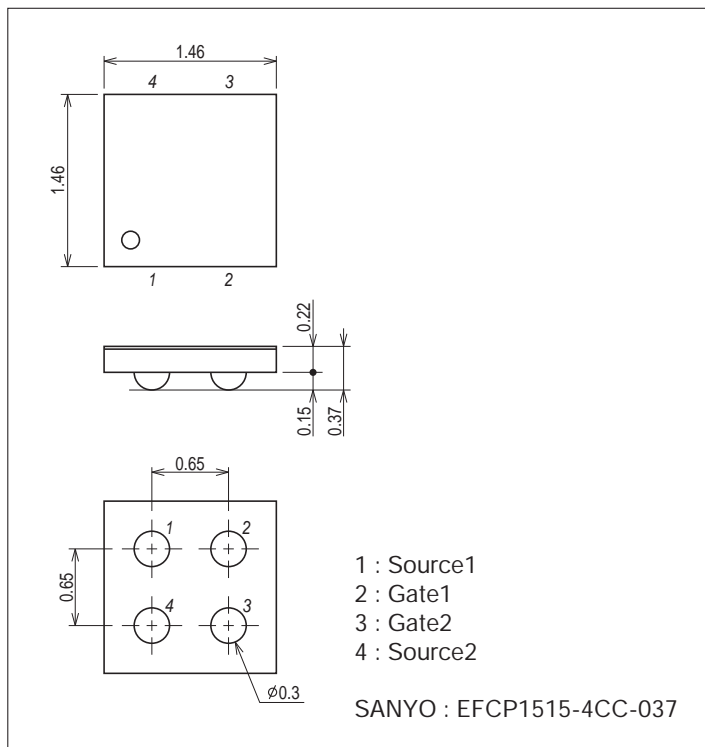
Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|--------------------------|------------------|----------------------------------------------------------------|-------------|------|
| Source-to-Source Voltage | V _{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 | T _{ch} | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

Package Dimensions

unit : mm (typ)

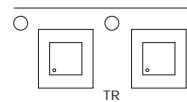
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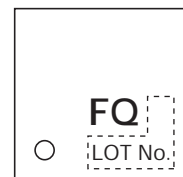
Product & Package Information

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

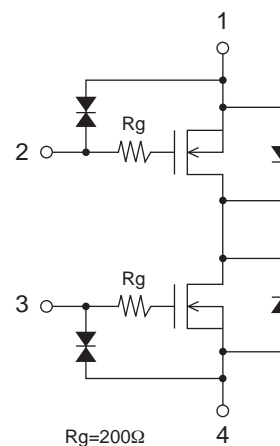
Taping Type : TR



Marking



Electrical Connection



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<http://semicon.sanyo.com/en/network>

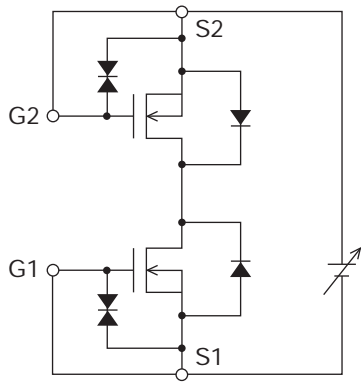
Electrical Characteristics at Ta=25°C

| 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 | | 5.4 | | S |
| Static Source-to-Source On-State Resistance | RSS(on)1 | IS=3A, VGS=4.5V | Test Circuit 5 | 19 | 27 | 31 | mΩ |
| | RSS(on)2 | IS=3A, VGS=4.0V | Test Circuit 5 | 21 | 28 | 33 | mΩ |
| | RSS(on)3 | IS=3A, VGS=3.1V | Test Circuit 5 | 24 | 33 | 44 | mΩ |
| | RSS(on)4 | IS=3A, VGS=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 | VSS=10V, VGS=4.5V, IS=6A | | | 8.8 | | nC |
| Forward Source-to-Source Voltage | V _{F(S-S)} | IS=6A, VGS=0V | Test Circuit 6 | | 1 | 1.2 | V |

Test circuits are example of measuring FET1 side

Test Circuit 1

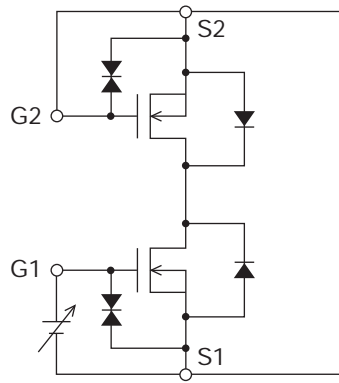
V_{SSS} / I_{SSS}



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Test Circuit 2

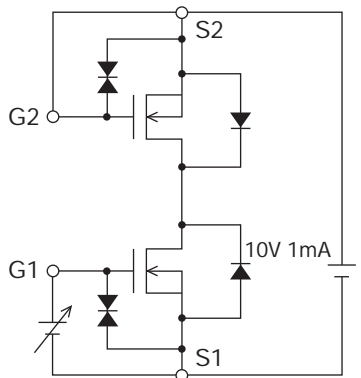
$I_{GSS}(+) / (-)$



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Test Circuit 3

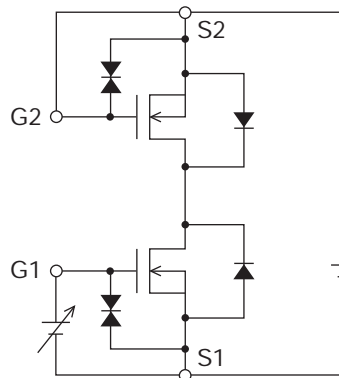
$V_{GS(off)}$



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Test Circuit 4

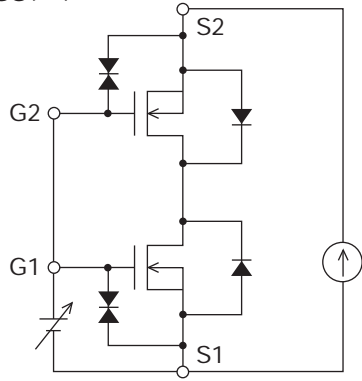
$|y_{fs}|$



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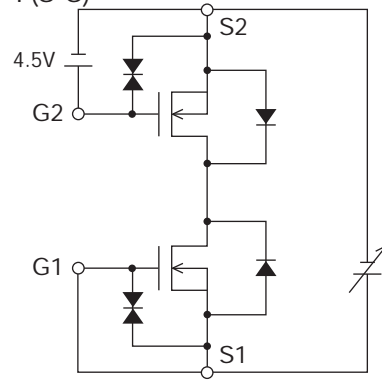
* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.

Test Circuit 5
RSS(on)



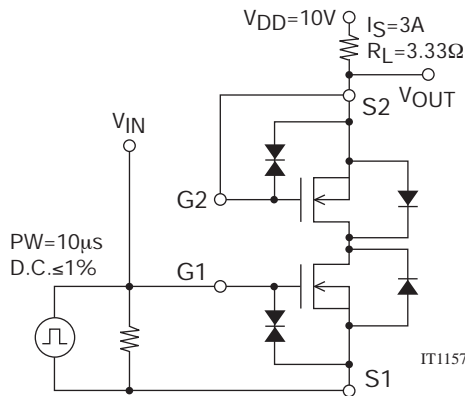
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Test Circuit 6
VF(S-S)



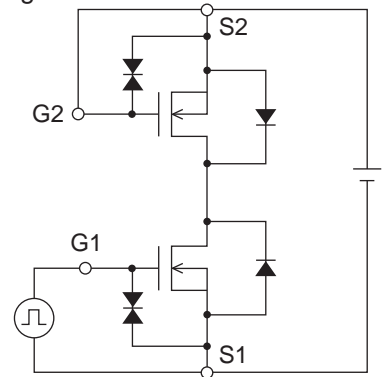
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Test Circuit 7
td(on), tr, td(off), tf



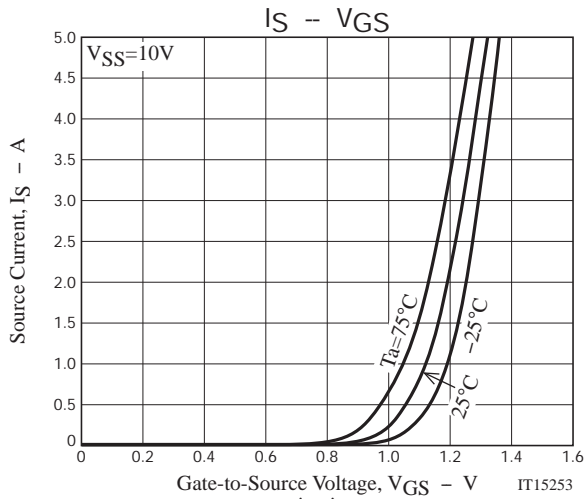
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Test Circuit 8
Qg

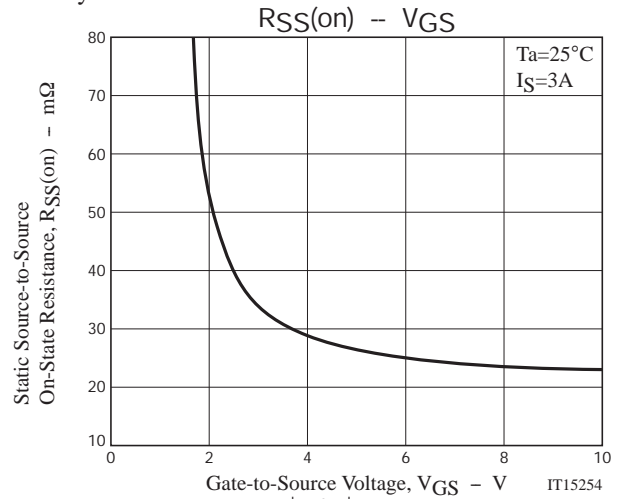


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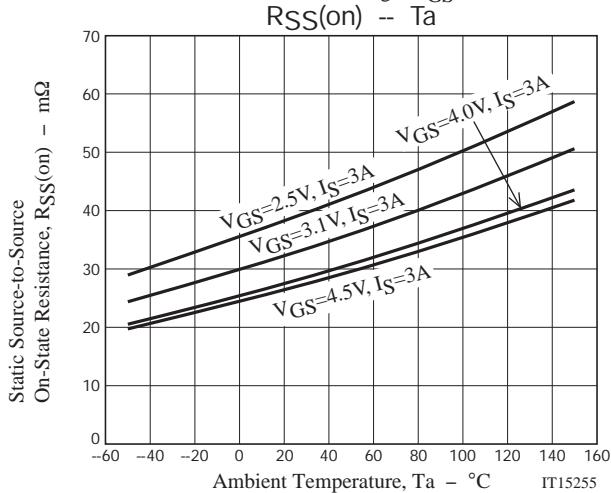
* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.



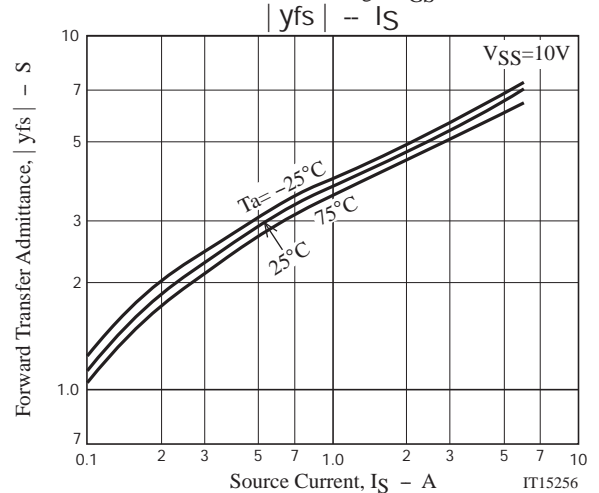
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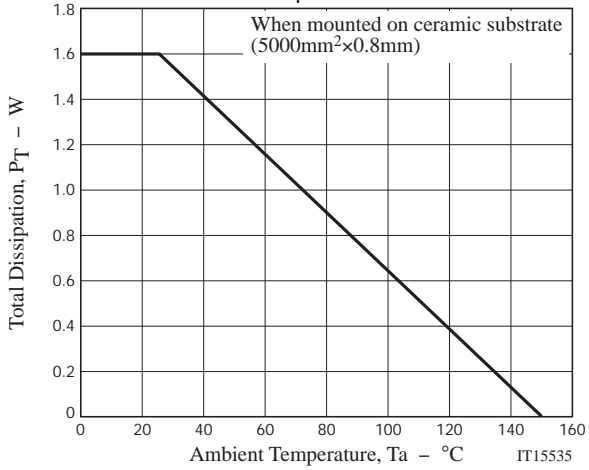
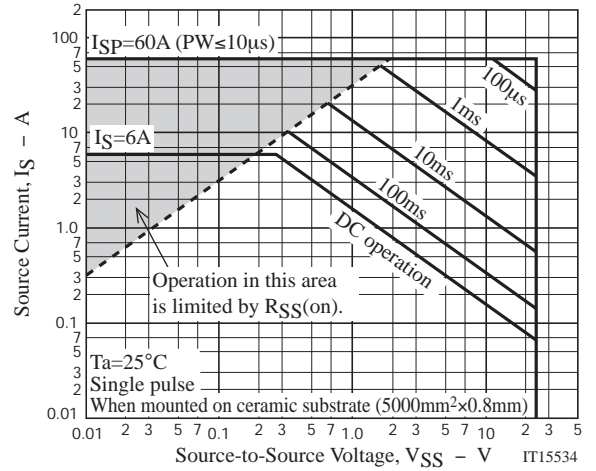
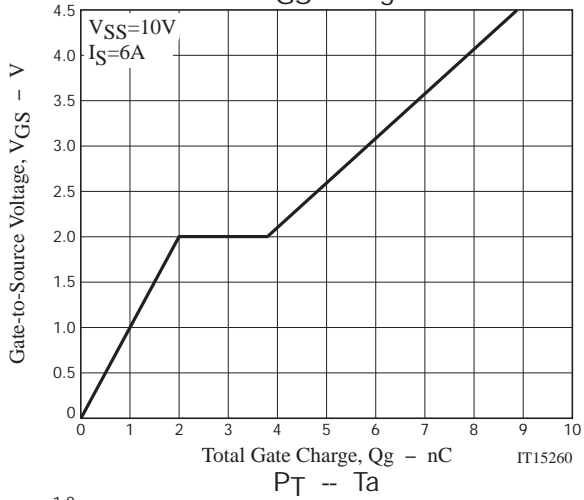
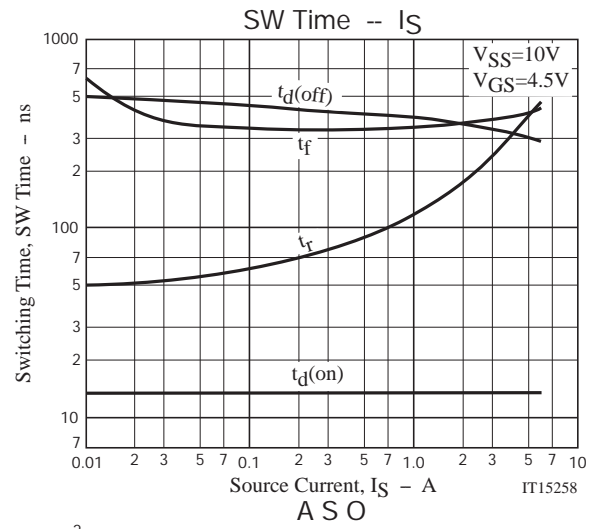
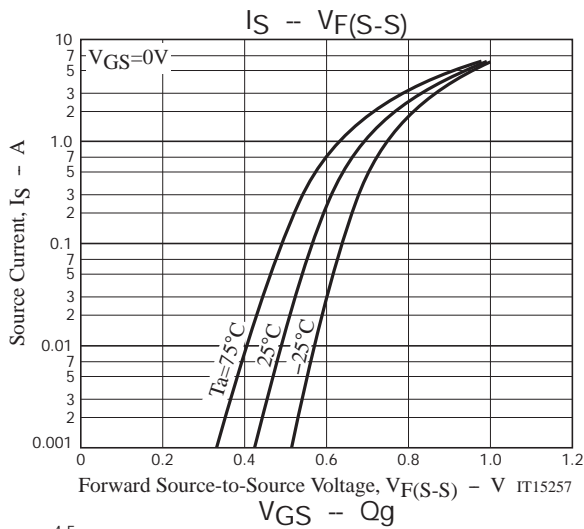
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IT15255



IT15256



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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