

# EFC4618R-P



## Power MOSFET 24V, 6A, 23mΩ, Dual N-Channel

ON Semiconductor®

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### Features

- 2.5V Drive
- Best Suited for LiB Charging and Discharging Switch
- Common-drain Type
- ESD Diode - Protected Gate
- Pb-Free, Halogen Free and RoHS Compliance

### Specifications

Absolute Maximum Ratings at Ta=25°C

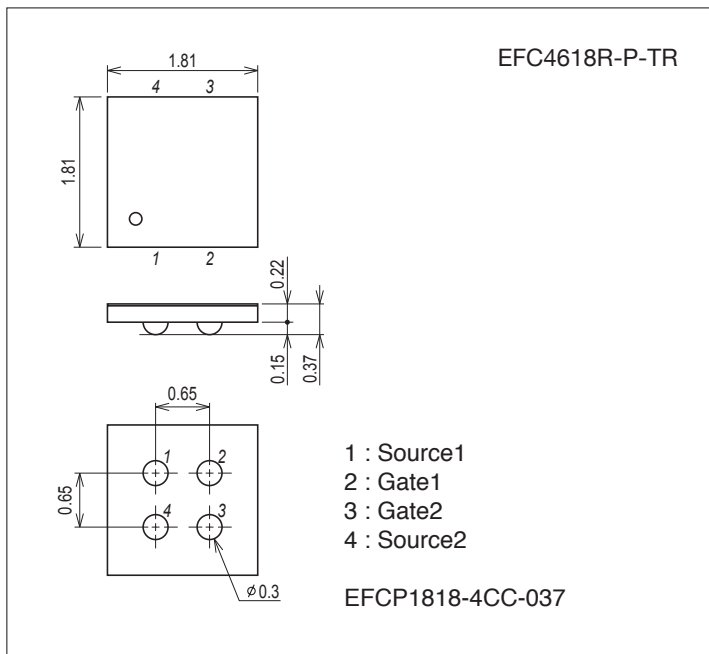
Parameter	Symbol	Conditions	Ratings	Unit
Source-to-Source Voltage	V <sub>SSS</sub>		24	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±12	V
Source Current (DC)	I <sub>S</sub>		6	A
Source Current (Pulse)	I <sub>SP</sub>	PW≤10μs, duty cycle≤1%	60	A
Total Dissipation	P <sub>T</sub>	When mounted on ceramic substrate (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

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### Package Dimensions

unit : mm (typ)

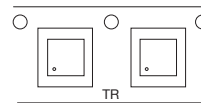
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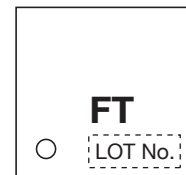
### Product & Package Information

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

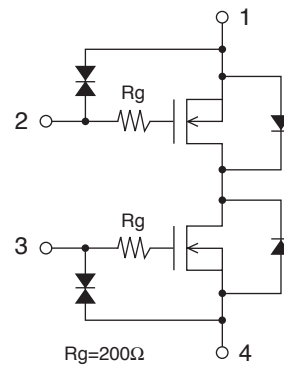
### Packing Type : TR



### Marking



### Electrical Connection



### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

# EFC4618R-P

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Source-to-Source Breakdown Voltage	$V_{(BR)SSS}$	$I_S=1mA, V_{GS}=0V$ 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		6.5		S
Static Source-to-Source On-State Resistance	$R_{SS(on)1}$	$I_S=3A, V_{GS}=4.5V$ Test Circuit 5	13.5	19.8	23	$m\Omega$
	$R_{SS(on)2}$	$I_S=3A, V_{GS}=4.0V$ Test Circuit 5	14	20.5	24	$m\Omega$
	$R_{SS(on)3}$	$I_S=3A, V_{GS}=3.7V$ Test Circuit 5	14.5	21	25.5	$m\Omega$
	$R_{SS(on)4}$	$I_S=3A, V_{GS}=3.1V$ Test Circuit 5	14.9	23	30	$m\Omega$
	$R_{SS(on)5}$	$I_S=3A, V_{GS}=2.5V$ Test Circuit 5	18.5	27	35	$m\Omega$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit. Test Circuit 7		200		ns
Rise Time	$t_r$			815		ns
Turn-OFF Delay Time	$t_{d(off)}$			1840		ns
Fall Time	$t_f$			1770		ns
Total Gate Charge	$Q_g$		$V_{SS}=10V, V_{GS}=4.5V, I_S=6A$		25.4	
Forward Source-to-Source Voltage	$V_{F(S-S)}$	$I_S=3A, V_{GS}=0V$ Test Circuit 6		0.76	1.2	V

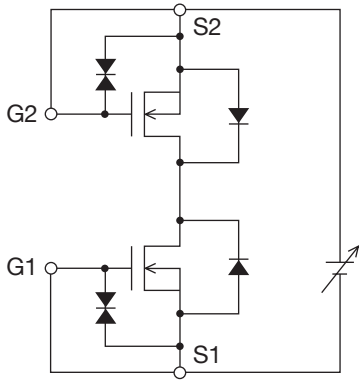
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

## ORDERING INFORMATION

Device	Package	Shipping	memo
EFC4618R-P-TR	EFCP	5,000pcs./reel	Pb-Free and Halogen Free

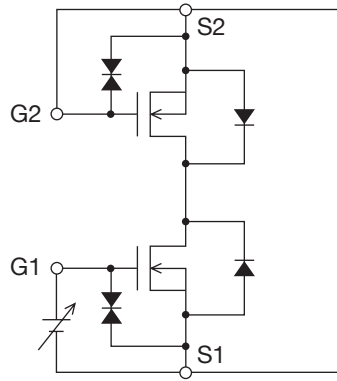
## Test circuits are example of measuring FET1 side

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



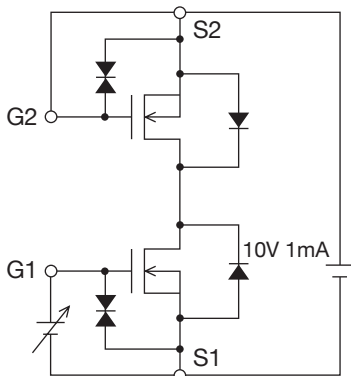
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Test Circuit 2  
 $I_{GSS(+)} / (-)$



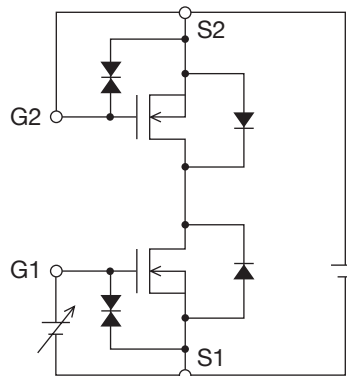
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Test Circuit 3  
 $V_{GS(off)}$



IT11567

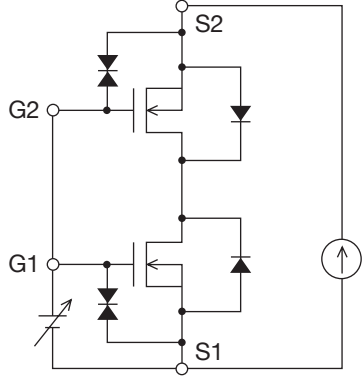
Test Circuit 4  
 $|y_{fs}|$



IT11568

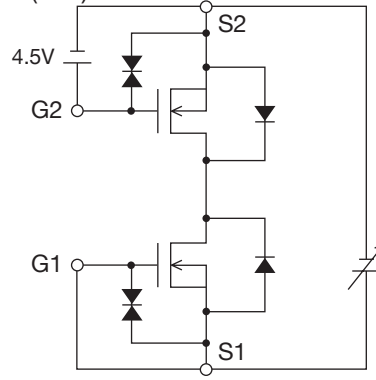
\* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.

Test Circuit 5  
R<sub>SS(on)</sub>



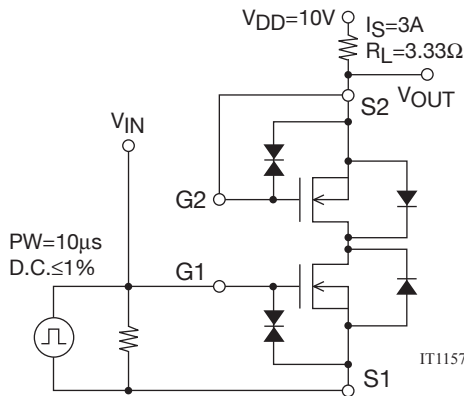
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Test Circuit 6  
V<sub>F(S-S)</sub>



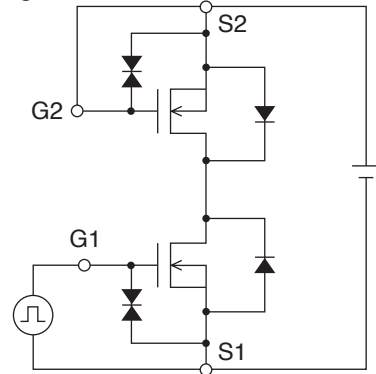
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Test Circuit 7  
t<sub>d(on)</sub>, t<sub>r</sub>, t<sub>d(off)</sub>, t<sub>f</sub>



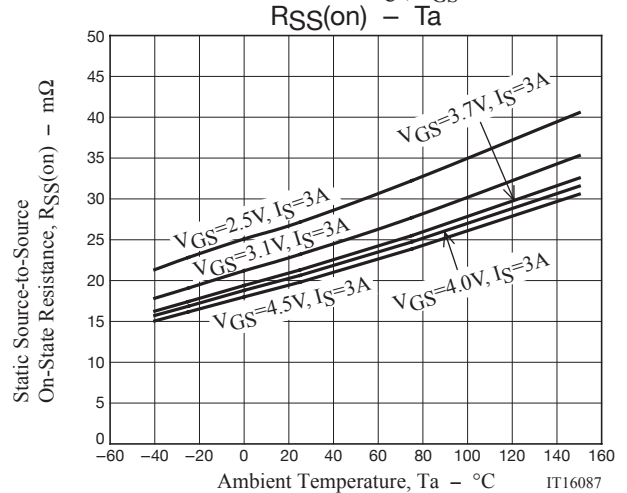
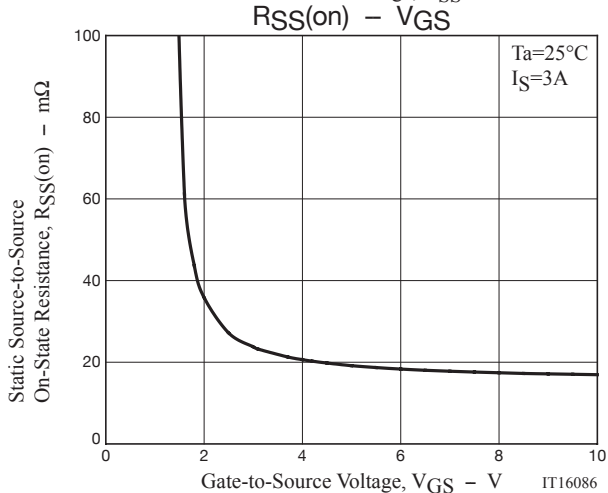
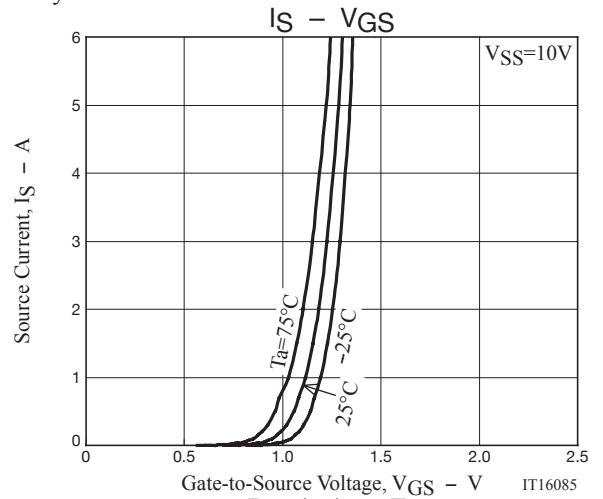
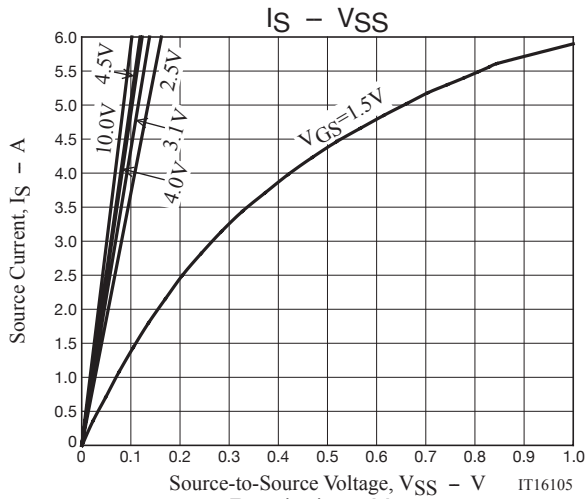
IT11571

Test Circuit 8  
Q<sub>g</sub>

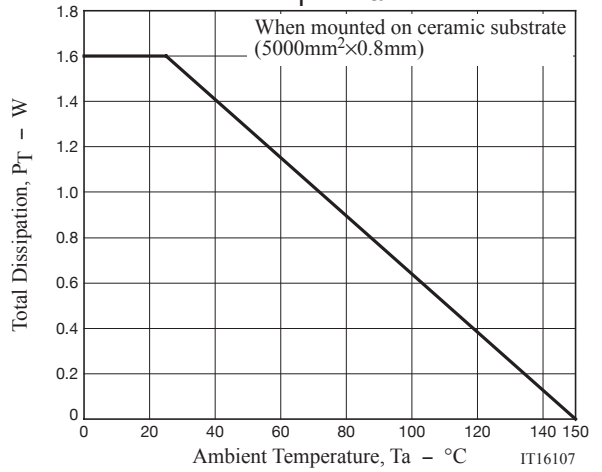
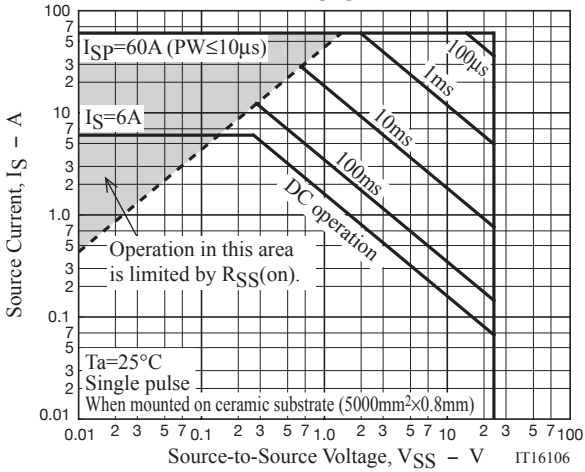
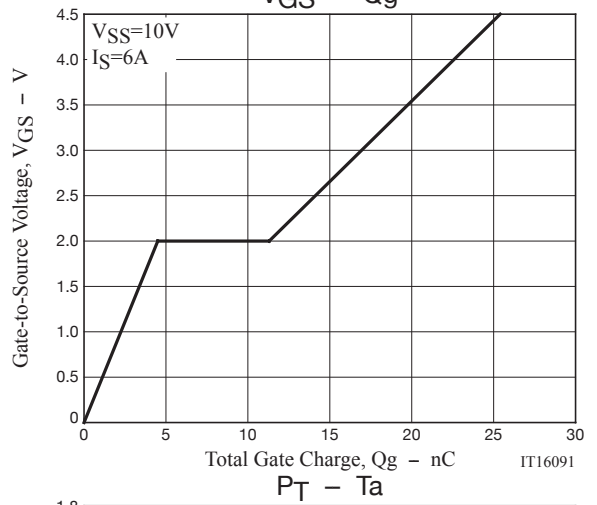
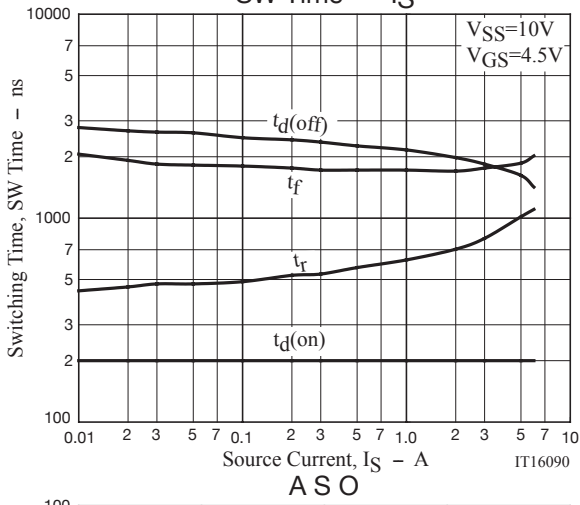
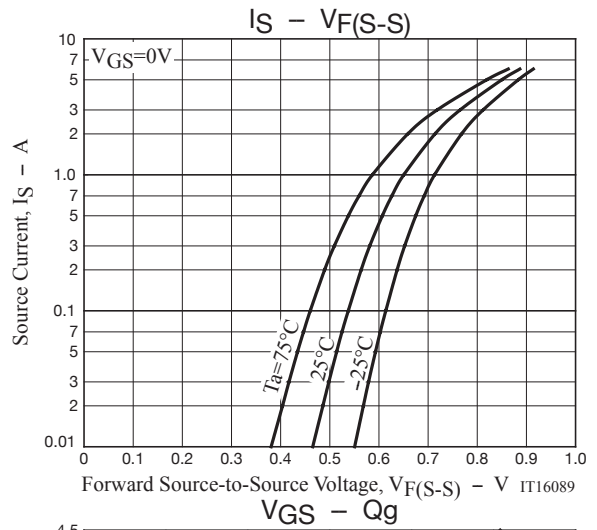
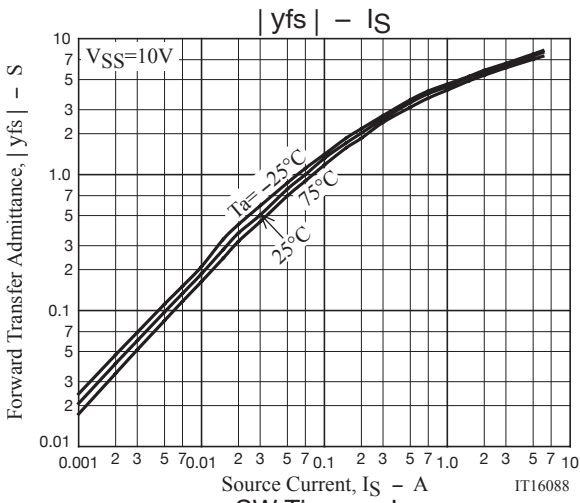


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\* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.



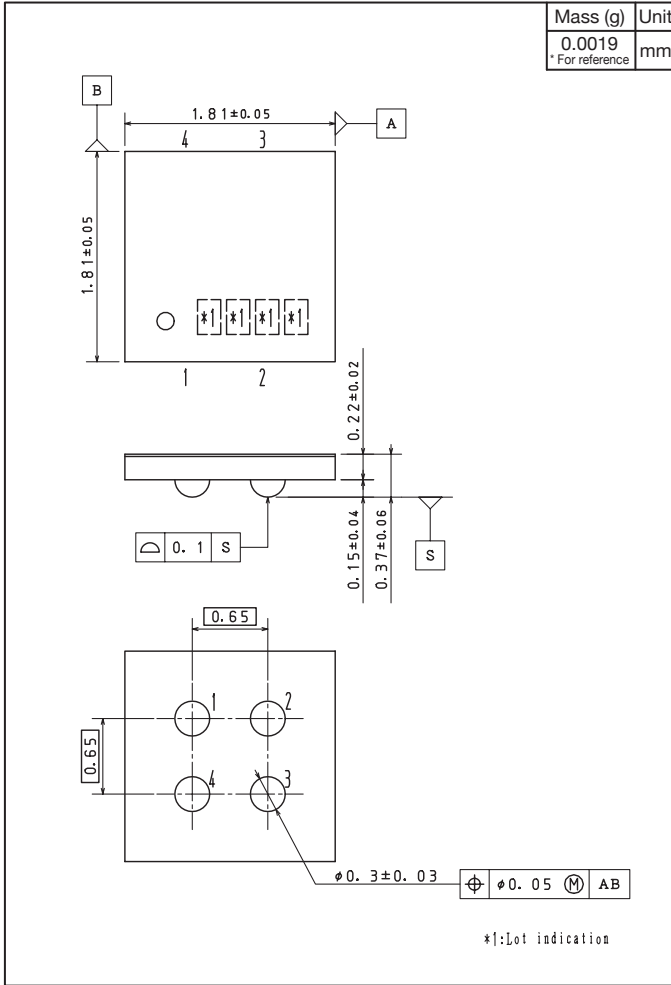
# EFC4618R-P



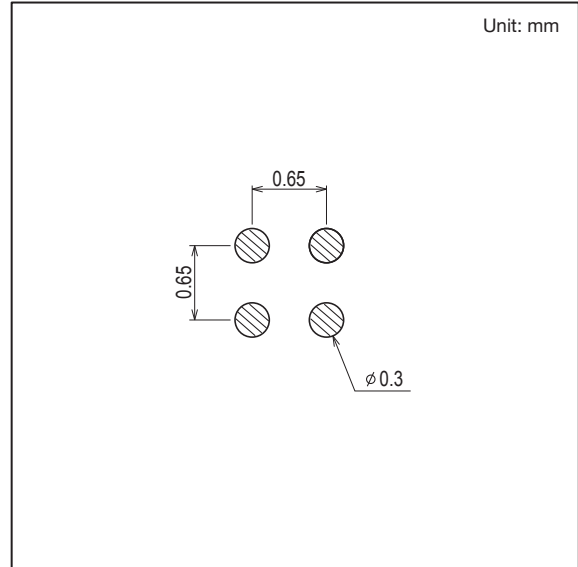
# EFC4618R-P

## Outline Drawing

EFC4618R-P-TR



## Land Pattern Example



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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