



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

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
- Protection diode in
- Halogen free compliance

Specifications

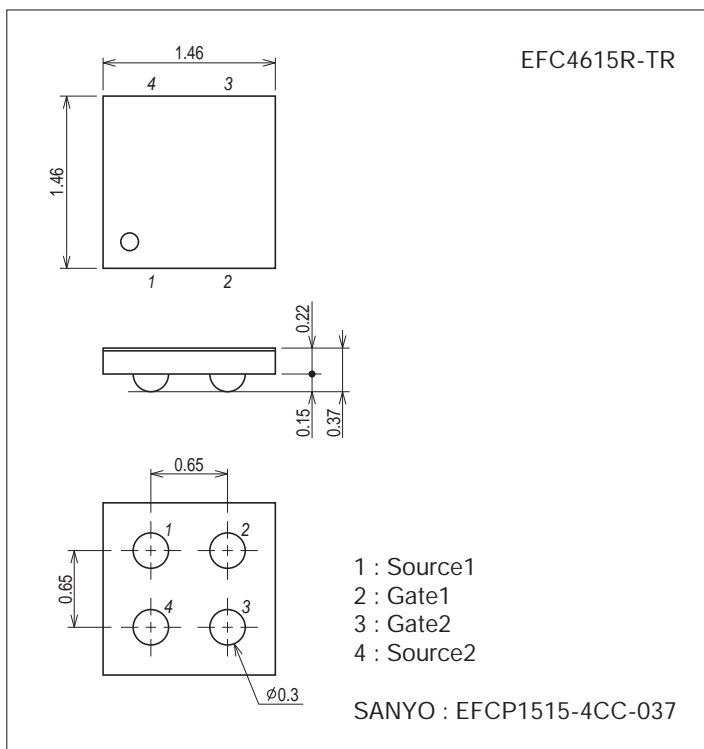
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Source-to-Source Voltage	VSSS		24	V
Gate-to-Source Voltage	VGSS		±12	V
Source Current (DC)	IS		6	A
Source Current (Pulse)	ISP	PW≤10μs, duty cycle≤1%	60	A
Total Dissipation	PT	When mounted on ceramic substrate (5000mm ² ×0.8mm)	1.6	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Package Dimensions

unit : mm (typ)

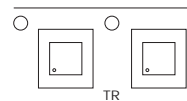
7067-001



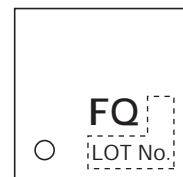
Product & Package Information

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

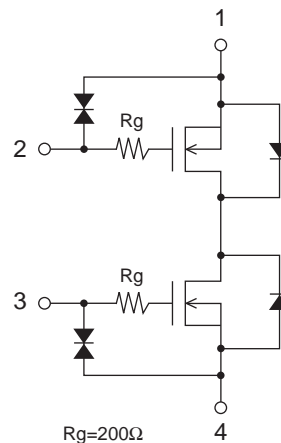
Taping Type : TR



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	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{SS} =0V Test Circuit 2			±10	μA
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	mΩ
	R _{SS(on)2}	I _S =3A, V _{GS} =4.0V Test Circuit 5	21	28	33	mΩ
	R _{SS(on)3}	I _S =3A, V _{GS} =3.1V Test Circuit 5	24	33	44	mΩ
	R _{SS(on)4}	I _S =3A, V _{GS} =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			235		ns
Turn-OFF Delay Time	t _{d(off)}			335		ns
Fall Time	t _f			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

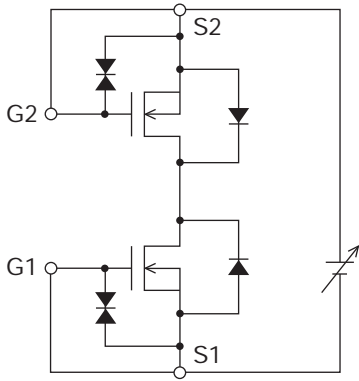
Ordering Information

Device	Package	Shipping	memo
EFC4615R-TR	EFCP	5,000pcs./reel	Pb Free and Halogen Free

Test circuits are example of measuring FET1 side

Test Circuit 1

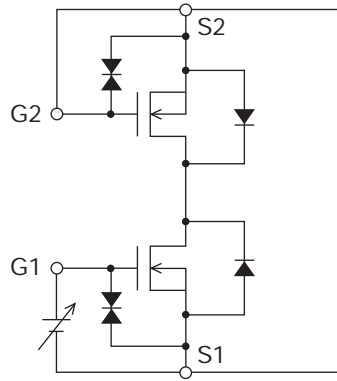
V_{SSS} / I_{SSS}



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Test Circuit 2

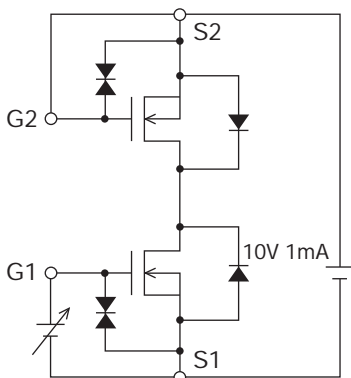
I_{GSS}(+) / (-)



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Test Circuit 3

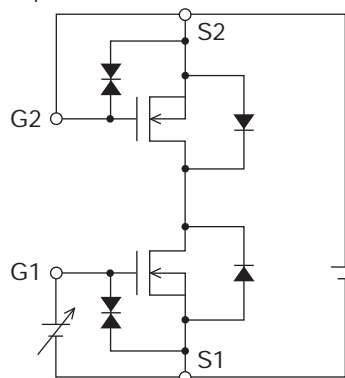
V_{GS(off)}



IT11567

Test Circuit 4

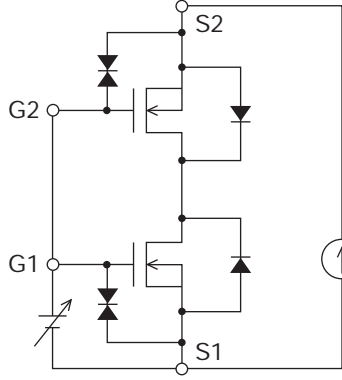
|y_{fs}|



IT11568

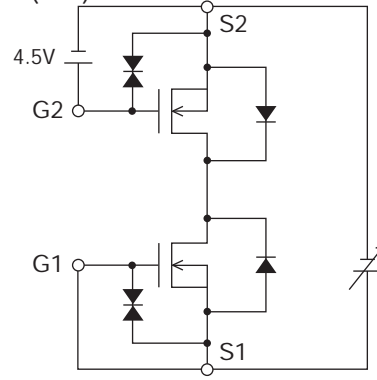
* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.

Test Circuit 5
RSS(on)



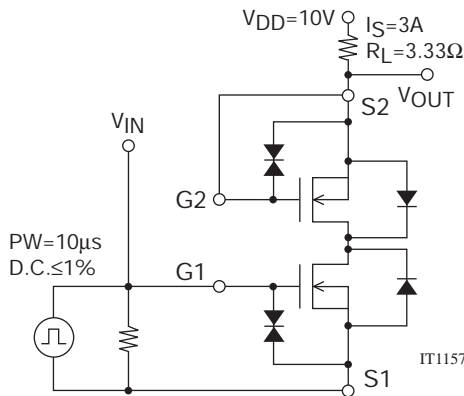
IT11569

Test Circuit 6
VF(S-S)



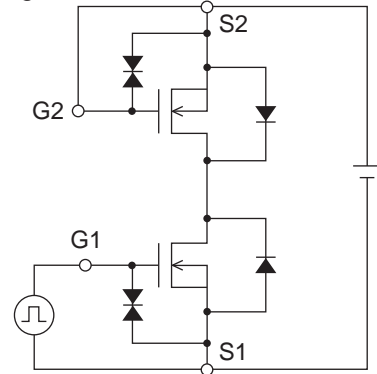
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Test Circuit 7
td(on), tr, td(off), tr



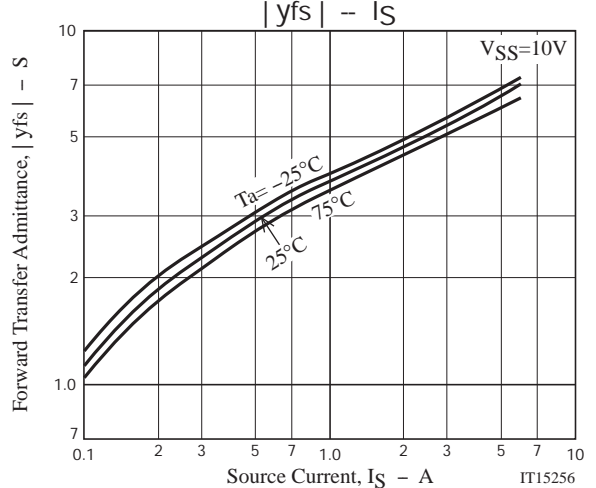
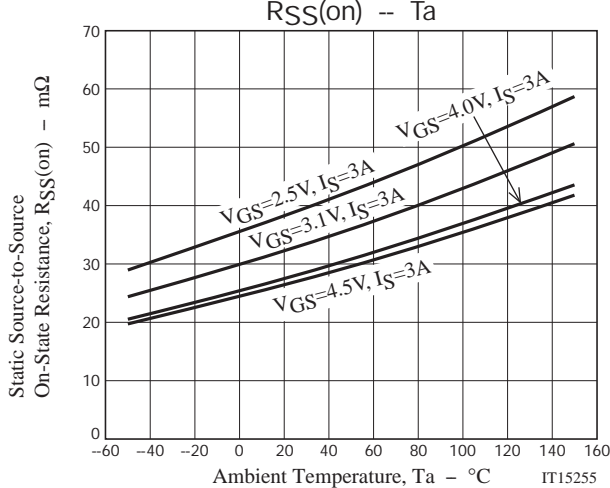
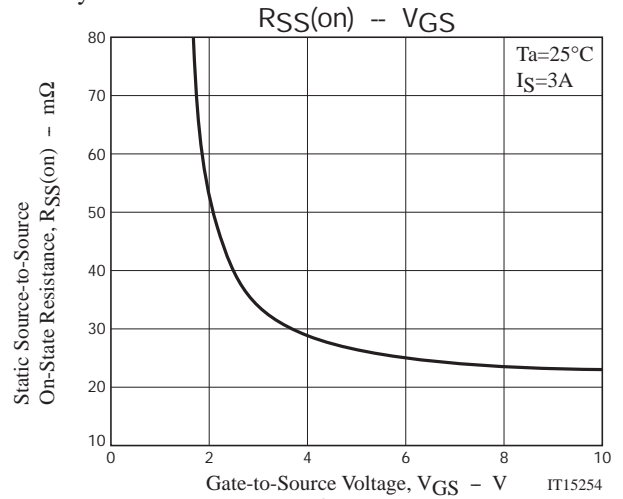
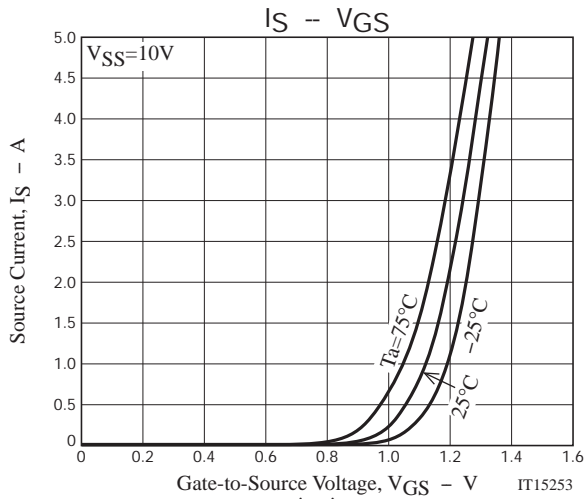
IT11571

Test Circuit 8
Qg

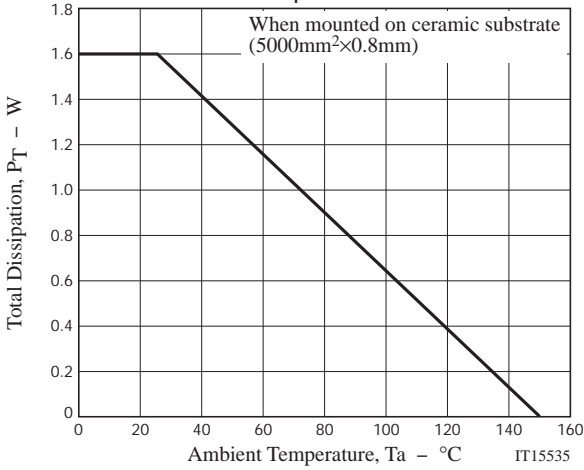
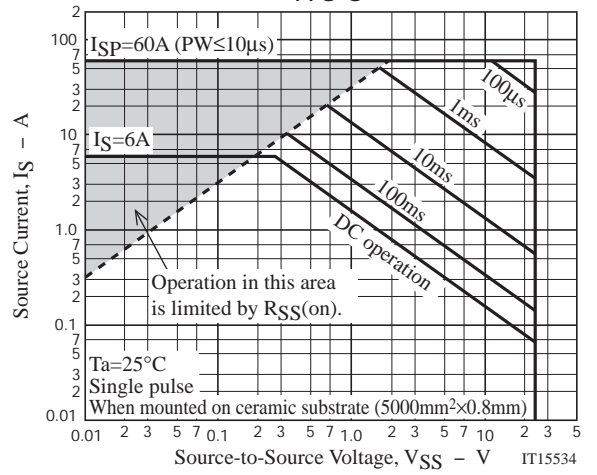
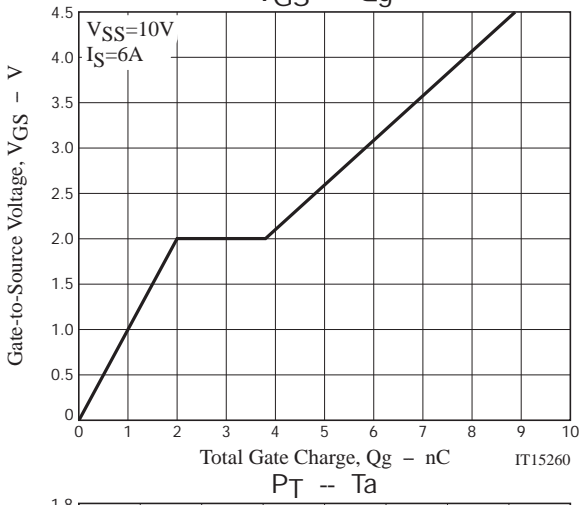
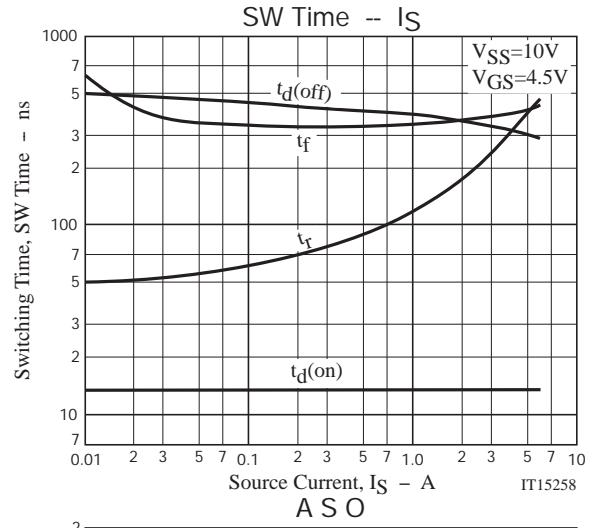
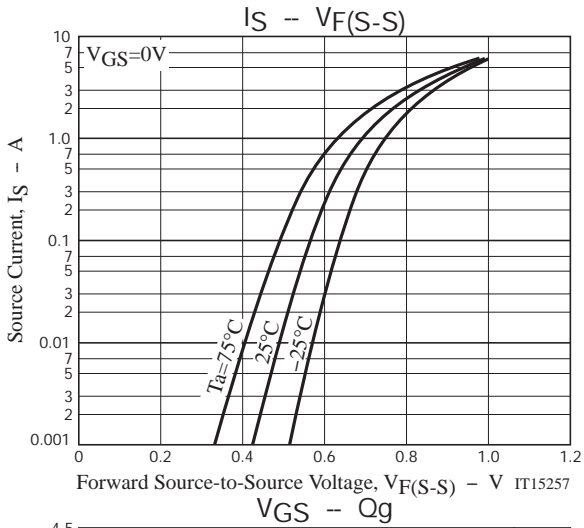


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* Note: Connect the measurement terminal reversely if you want to measure the FET2 side.



EFC4615R



EFC4615R

Taping Specification

EFC4615R-TR

1. Packing Format

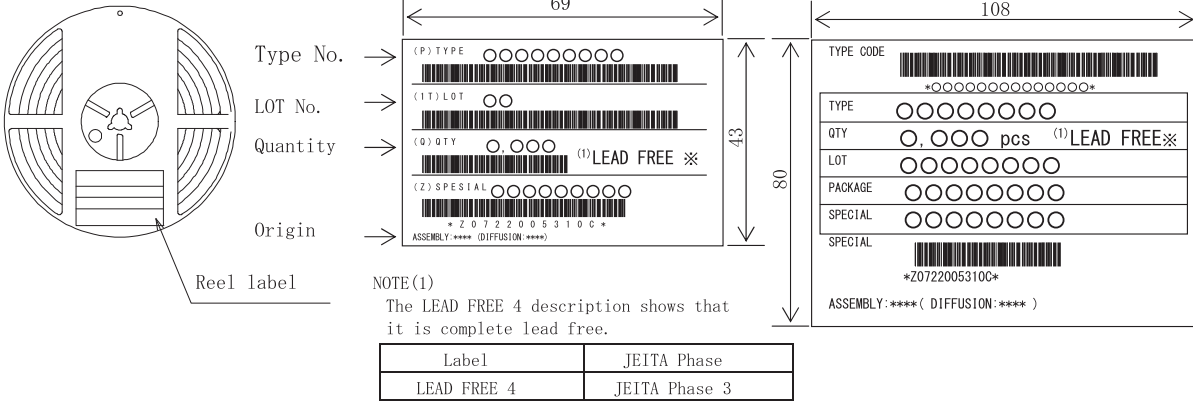
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX(C-1)	Outer BOX(A-7)
EFCP1515-4CC-037	CARR(165X055)	5,000	25,000	150,000	5 reels contained Dimensions :mm(external) 183 X 72 X 185	6 inner boxes contained Dimensions :mm(external) 440 X 195 X 210

Packing method

Reel label, Inner box label (unit: mm)

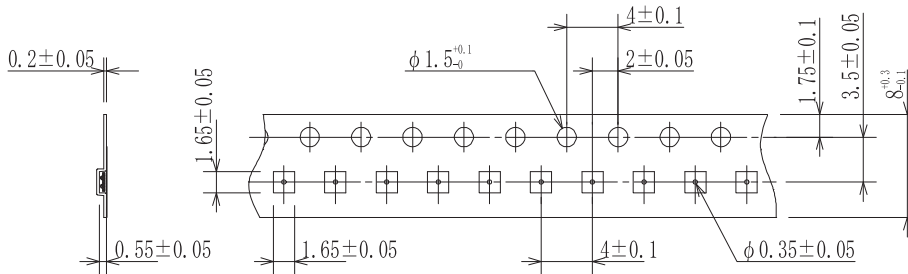
Outer box label

It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

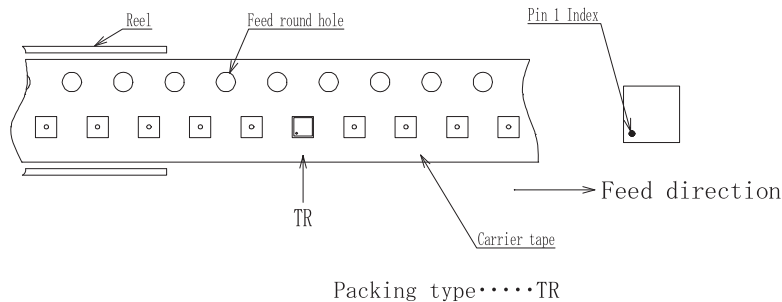


2. Taping configuration

2-1. Carrier tape size (unit: mm)



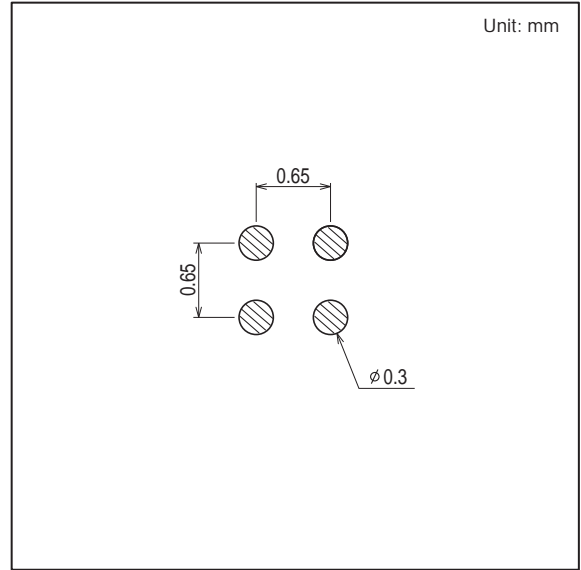
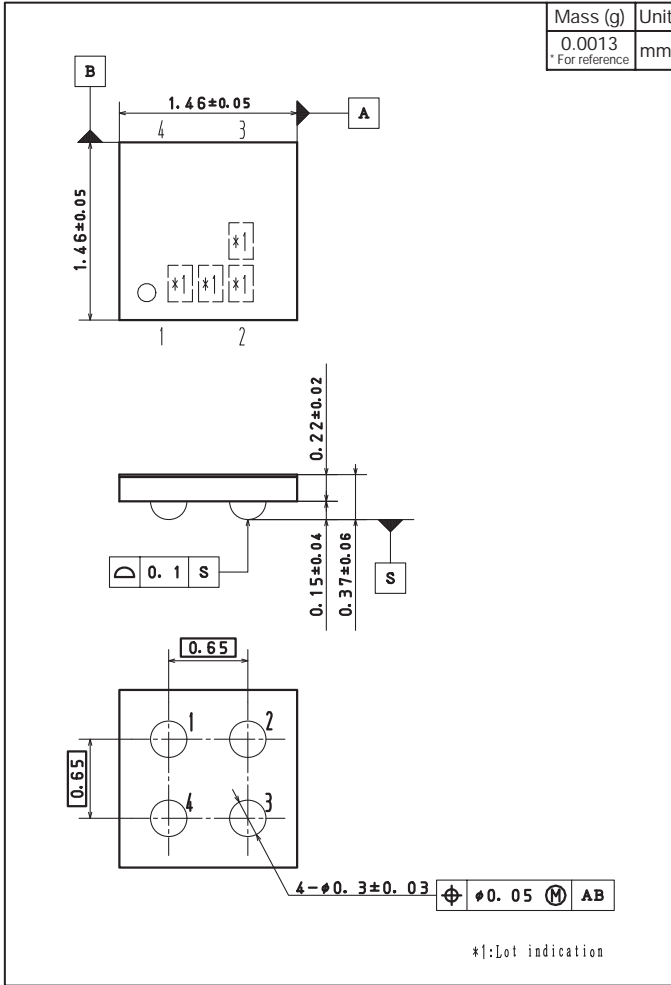
2-2. Device placement direction



EFC4615R

Outline Drawing EFC4615R-TR

Land Pattern Example



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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