

# SANYO Semiconductors

# DATA SHEET

## N-Channel Silicon MOSFET EMH2411R — General-Purpose Switching Device **Applications**

## **Features**

- · Low ON-resistance.
- Best suited for LiB charging and discharging switch.
- Common-drain type.
- 2.5V drive.
- · Halogen free compliance.

## **Specifications**

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	VDSS		30	V
Gate-to-Source Voltage	VGSS		±12	V
Drain Current (DC)	ID		5	А
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	60	А
Allowable Power Dissipation	PD	When mounted on ceramic substrate (900mm <sup>2</sup> x0.8mm) 1unit	1.3	W
Total Dissipation	PT	When mounted on ceramic substrate (900mm <sup>2</sup> x0.8mm)	1.4	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Unit
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μΑ
Gate-to-Source Leakage Current	IGSS	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V			±10	μΑ
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	0.5		1.3	V
Forward Transfer Admittance	yfs	V <sub>DS</sub> =10V, I <sub>D</sub> =3A	3	5		S

Marking : LL

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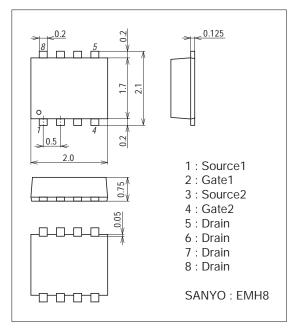
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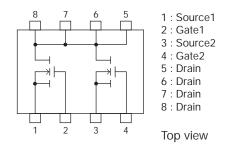
Parameter	Symbol	Conditions	Ratings			Linit
			min	typ	max	Unit
Static Drain-to-Source On-State Resistance	R <sub>DS</sub> (on)1	ID=2.5A, VGS=4.5V	19.5	28	36.5	mΩ
	R <sub>DS</sub> (on)2	ID=2.5A, VGS=4V	20	29	38	mΩ
	RDS(on)3	ID=1A, VGS=3.7V	21	30	39	mΩ
	R <sub>DS</sub> (on)4	ID=1A, VGS=3.1V	21	33	46.5	mΩ
	R <sub>DS</sub> (on)5	ID=1A, VGS=2.5V	22.5	38	54	mΩ
Turn-ON Delay Time	t <sub>d</sub> (on)	See specified Test Circuit.		300		ns
Rise Time	tr	See specified Test Circuit.		840		ns
Turn-OFF Delay Time	t <sub>d</sub> (off)	See specified Test Circuit.		3200		ns
Fall Time	tf	See specified Test Circuit.		1650		ns
Total Gate Charge	Qg	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A		5.9		nC
Gate-to-Source Charge	Qgs	VDS=10V, VGS=4.5V, ID=5A		1		nC
Gate-to-Drain "Miller" Charge	Qgd	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A		1.2		nC
Diode Forward Voltage	V <sub>SD</sub>	IS=5A, VGS=0V		0.8	1.2	V

#### Package Dimensions

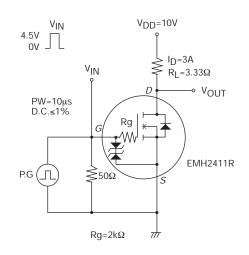
unit : mm (typ) 7045-006

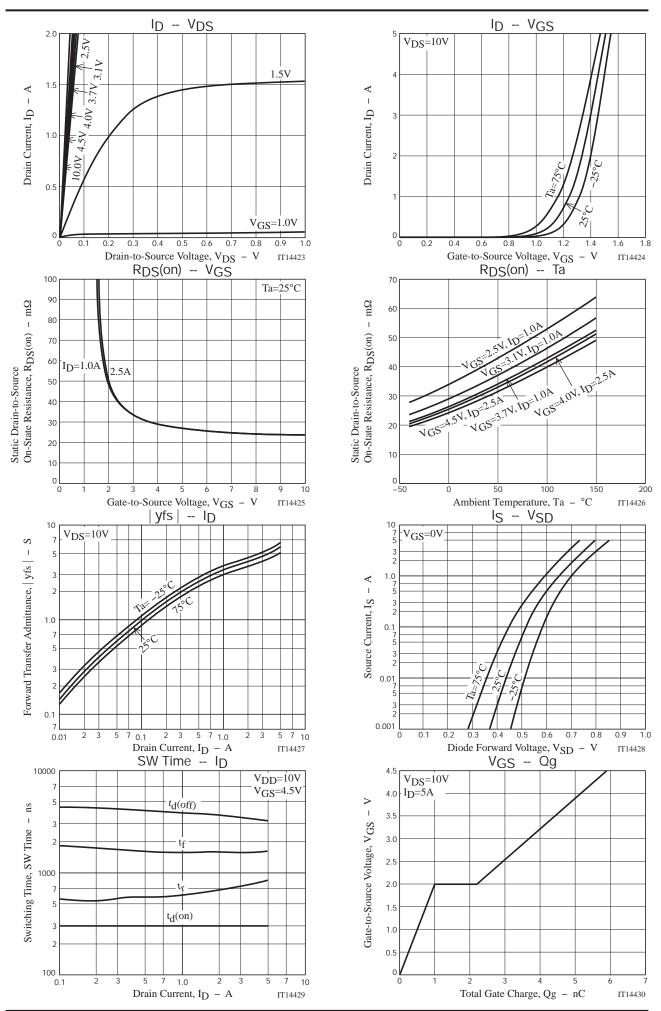


## **Electrical Connection**

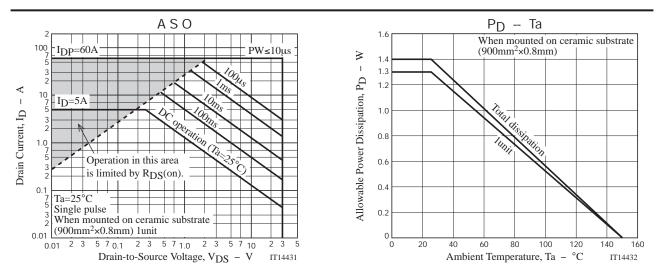


#### Switching Time Test Circuit





No. A1421-3/4



# Note on usage : Since the EMH2411R is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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