



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## EMH2407R — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

### Features

- ON-resistance  $R_{DS(on)1}$  : 16mΩ(typ.)
- Common-drain type
- Halogen free compliance
- Best suited for LiB charging and discharging switch
- 2.5V drive

### Specifications

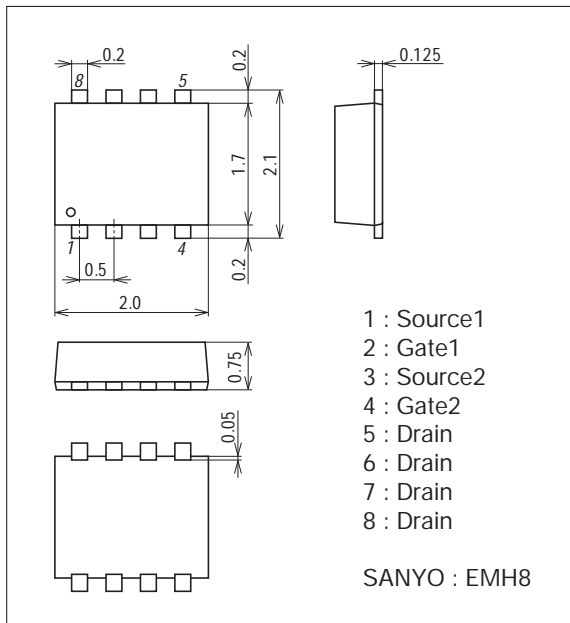
Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		20	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 12$	V
Drain Current (DC)	$I_D$		6	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	60	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	1.3	W
Total Dissipation	$P_T$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.4	W
Channel Temperature	$T_{ch}$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

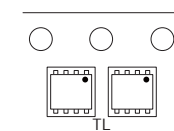
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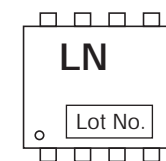
### Product & Package Information

- Package : EMH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

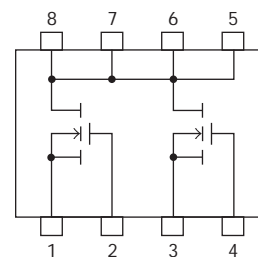
Taping Type : TL



Marking



### Electrical Connection

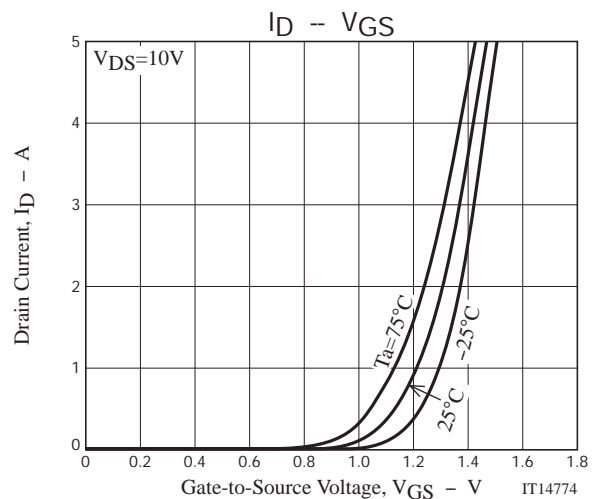
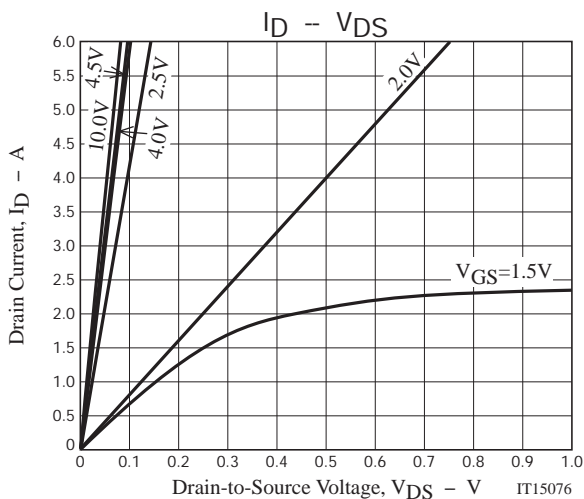
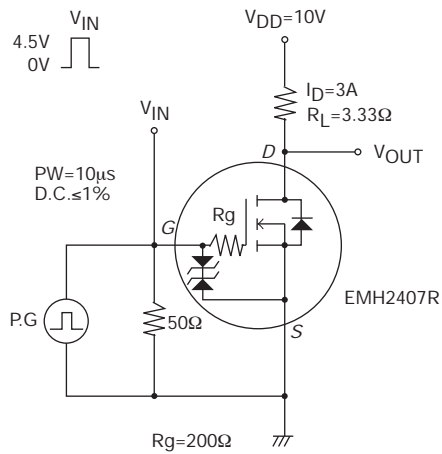


# EMH2407R

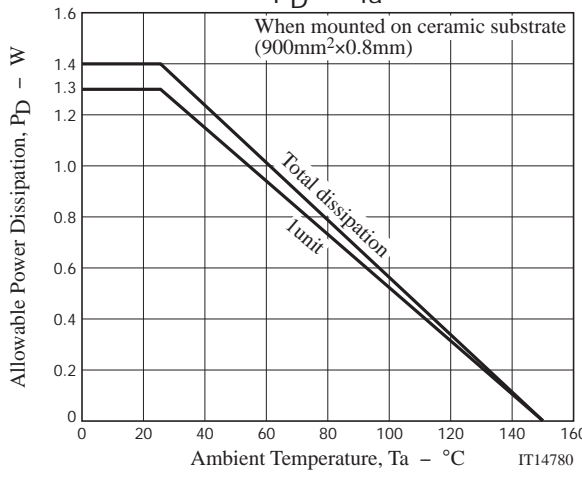
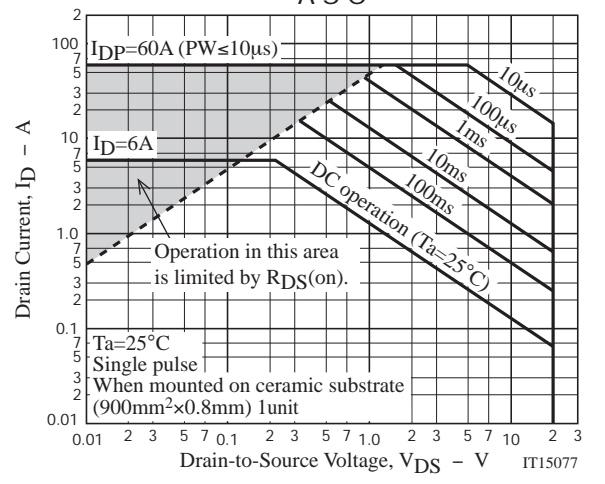
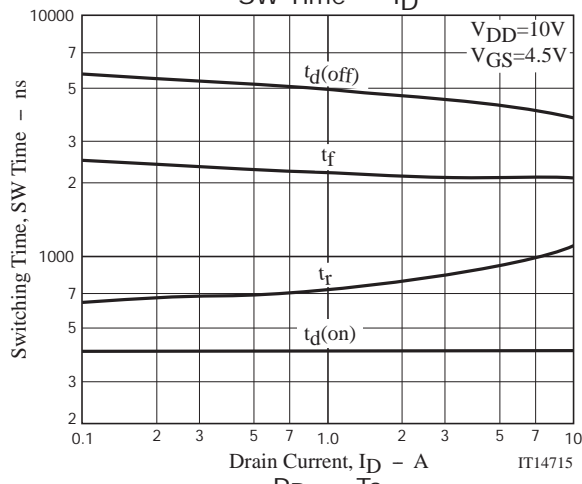
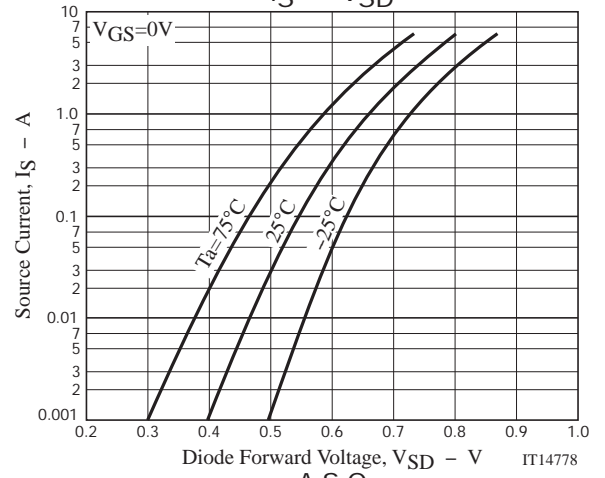
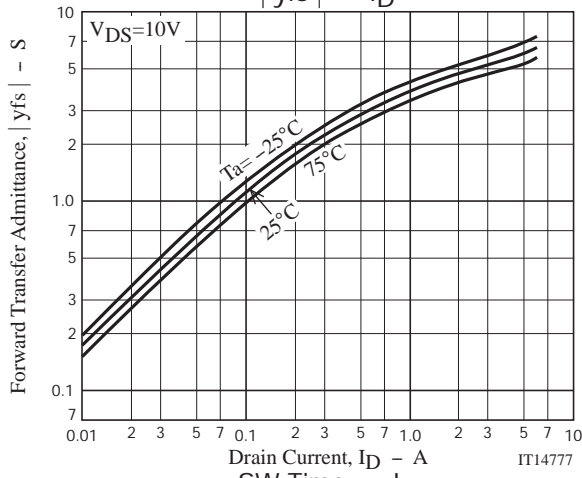
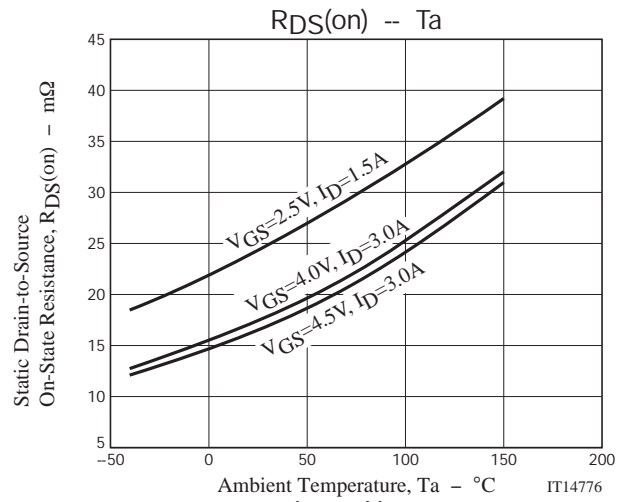
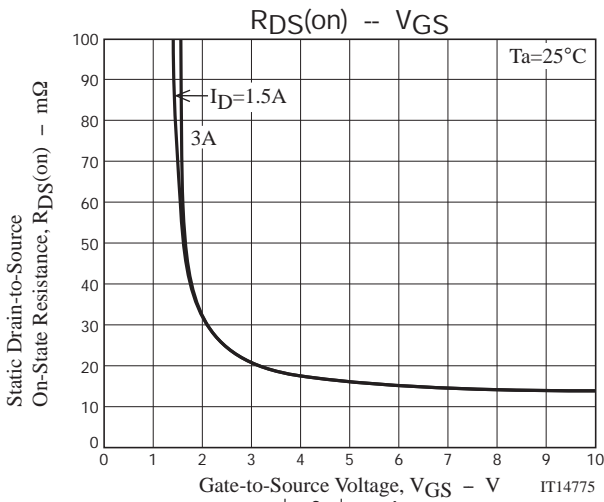
## Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}, V_{GS}=0\text{V}$	20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20\text{V}, V_{GS}=0\text{V}$			-1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	0.5		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}, I_D=3\text{A}$		5		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=3\text{A}, V_{GS}=4.5\text{V}$	11	16	21	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=3\text{A}, V_{GS}=4\text{V}$	11.5	17	23	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=1.5\text{A}, V_{GS}=2.5\text{V}$	14	24	34	$\text{m}\Omega$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		400		ns
Rise Time	$t_r$	See specified Test Circuit.		820		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		4500		ns
Fall Time	$t_f$	See specified Test Circuit.		2100		ns
Total Gate Charge	$Q_g$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=6\text{A}$		60		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=6\text{A}$		14		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=6\text{A}$		13		nC
Diode Forward Voltage	$V_{SD}$	$I_S=6\text{A}, V_{GS}=0\text{V}$		0.8	1.2	V

## Switching Time Test Circuit



# EMH2407R



Note on usage : Since the EMH2407R is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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