



SANYO Semiconductors

DATA SHEET

EMH1405 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)} = 14\text{m}\Omega$ (typ)
- 4V drive
- Halogen free compliance

Specifications

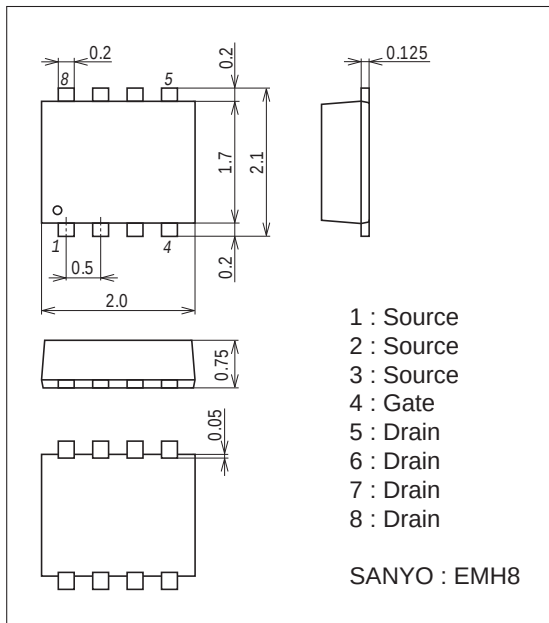
Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		30	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		8.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	34	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate ($1200\text{mm}^2 \times 0.8\text{mm}$)	1.5	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to $+150$	$^\circ\text{C}$

Package Dimensions

unit : mm (typ)

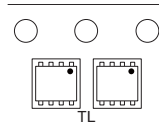
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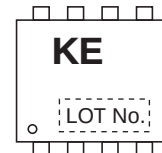
Product & Package Information

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

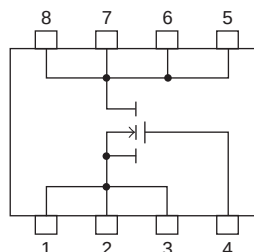
Taping Type : TL



Marking



Electrical Connection

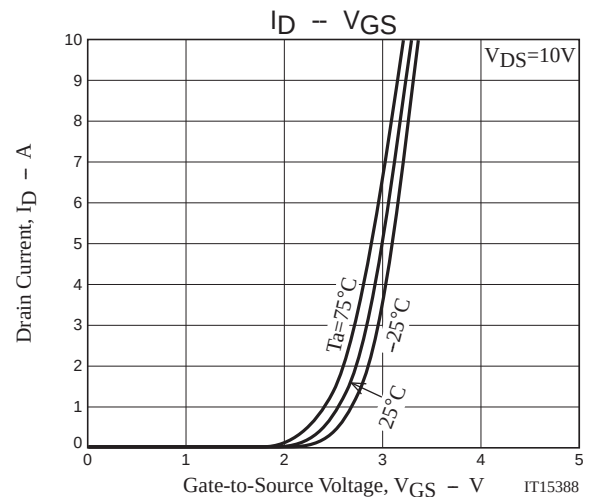
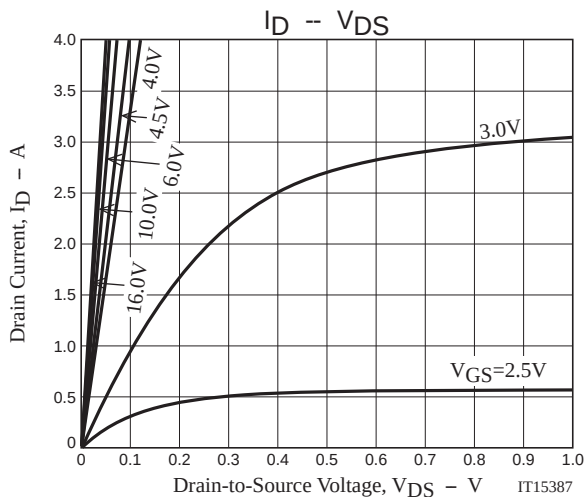
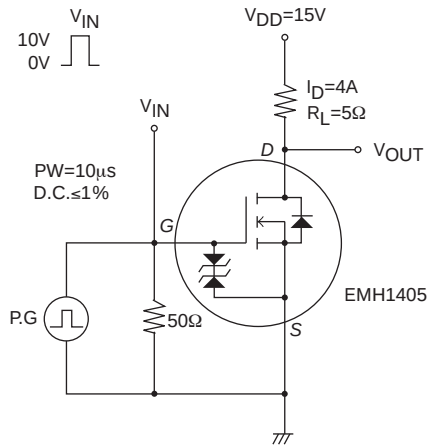


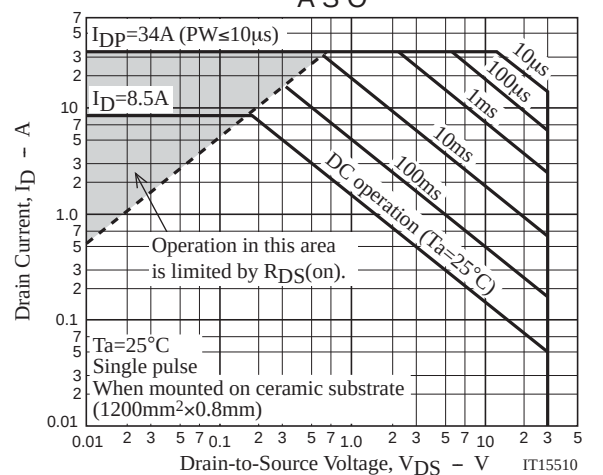
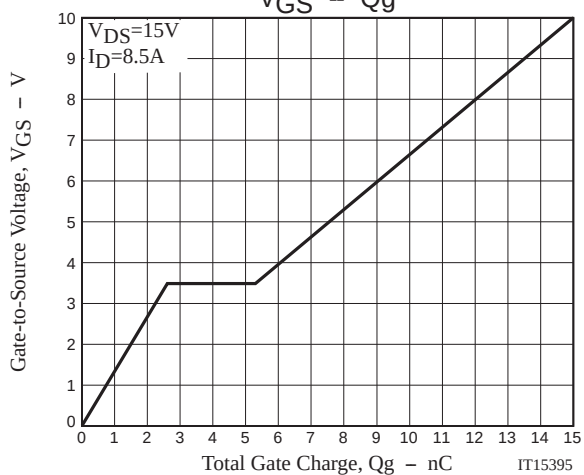
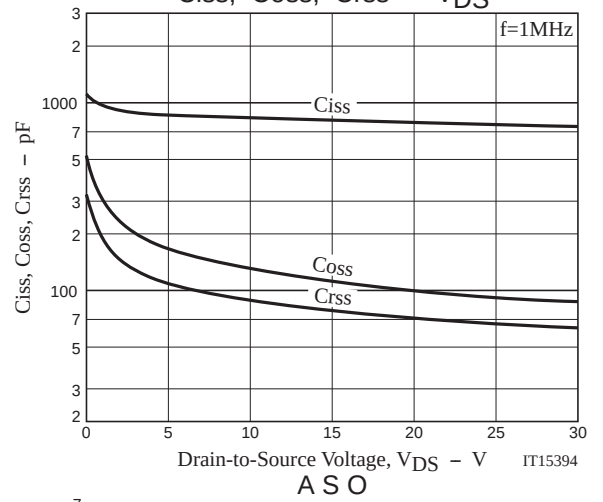
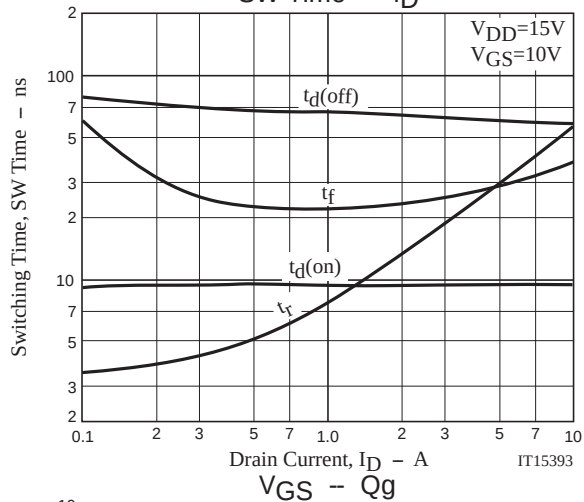
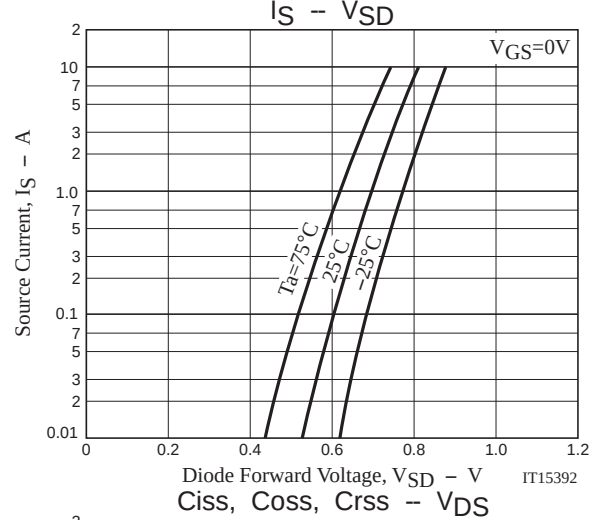
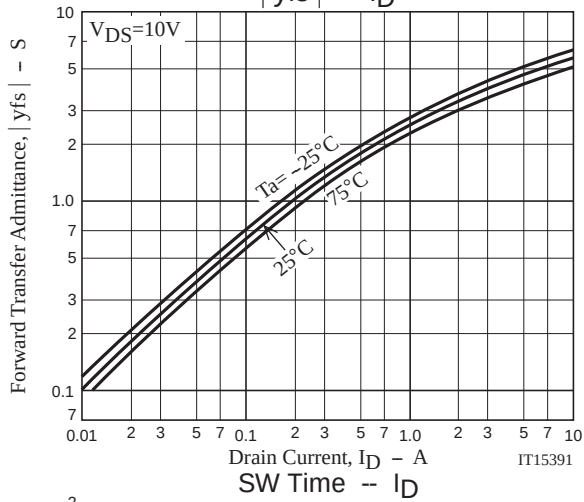
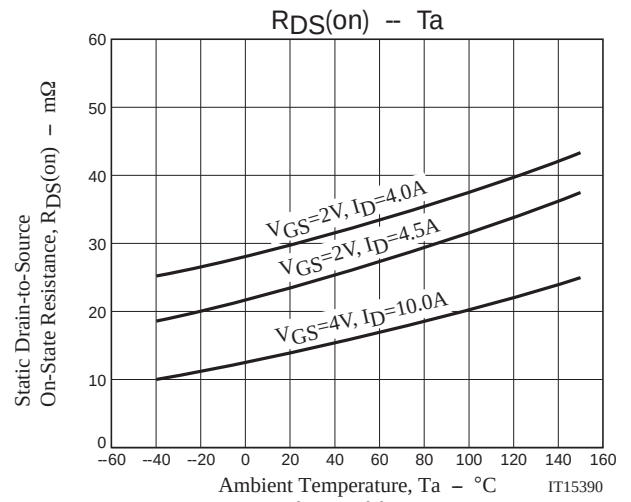
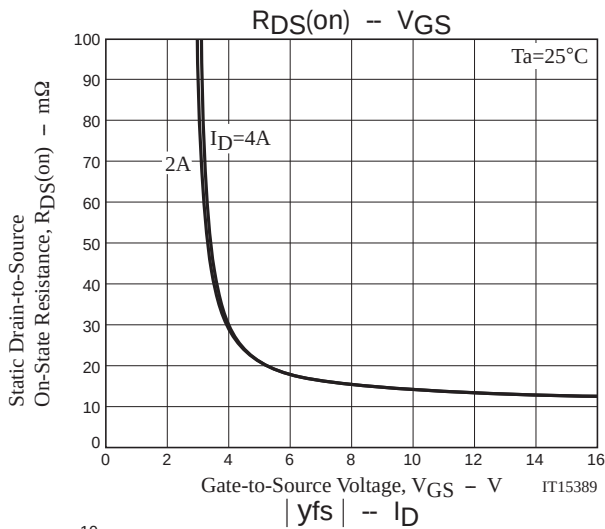
EMH1405

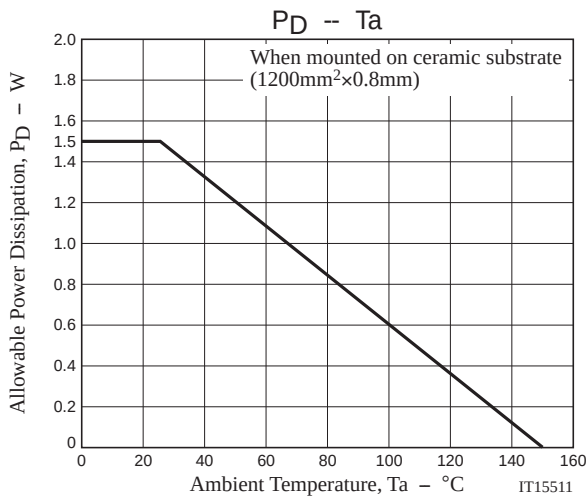
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=4A$		4.4		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=4A, V_{GS}=10V$		14	19	$m\Omega$
	$R_{DS(on)2}$	$I_D=2A, V_{GS}=4.5V$		24	34	$m\Omega$
	$R_{DS(on)3}$	$I_D=2A, V_{GS}=4V$		30	42	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		820		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		130		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		90		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		9.5		ns
Rise Time	t_r	See specified Test Circuit.		25		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		63		ns
Fall Time	t_f	See specified Test Circuit.		28		ns
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=10V, I_D=8.5A$		15		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=15V, V_{GS}=10V, I_D=8.5A$		2.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=15V, V_{GS}=10V, I_D=8.5A$		2.7		nC
Diode Forward Voltage	V_{SD}	$I_S=8.5A, V_{GS}=0V$		0.8	1.2	V

Switching Time Test Circuit







Note on usage : Since the EMH1405 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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