



# EMH2308 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- The EMH2308 incorporates a P-channel MOSFET that feature low ON-resistance and ultrahigh-speed switching, thereby enabling high-density mounting.
- 1.8V drive.

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		-3	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-20	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	1.0	W
Total Dissipation	P <sub>T</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.2	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V	-20			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V			-1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA	-0.4		-1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1.5A	2.1	3.6		S

Marking : MH

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# EMH2308

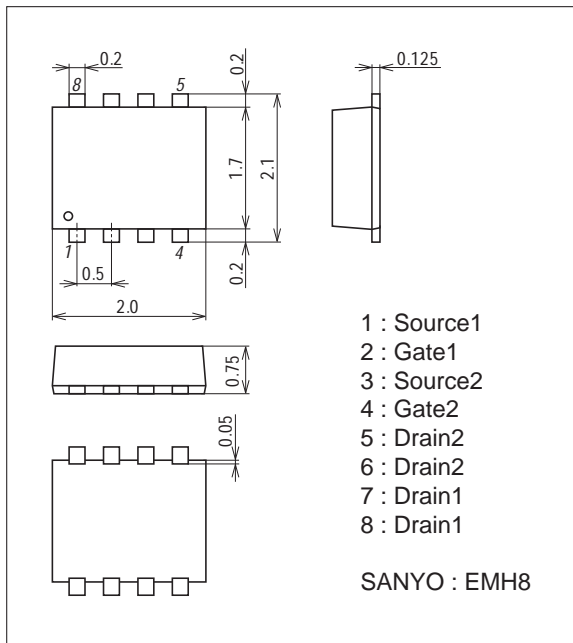
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -3A, V_{GS} = -4.5V$		65	85	$m\Omega$
	$R_{DS(on)2}$	$I_D = -1.0A, V_{GS} = -2.5V$		98	137	$m\Omega$
	$R_{DS(on)3}$	$I_D = -0.5A, V_{GS} = -1.8V$		155	235	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -10V, f = 1MHz$		320		$\mu F$
Output Capacitance	$C_{oss}$	$V_{DS} = -10V, f = 1MHz$		66		$\mu F$
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -10V, f = 1MHz$		50		$\mu F$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		7.1		ns
Rise Time	$t_r$	See specified Test Circuit.		21		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		37		ns
Fall Time	$t_f$	See specified Test Circuit.		32		ns
Total Gate Charge	$Q_g$	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -3A$		4.0		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -3A$		0.6		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -3A$		1.1		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -3A, V_{GS} = 0V$		-0.83	-1.2	V

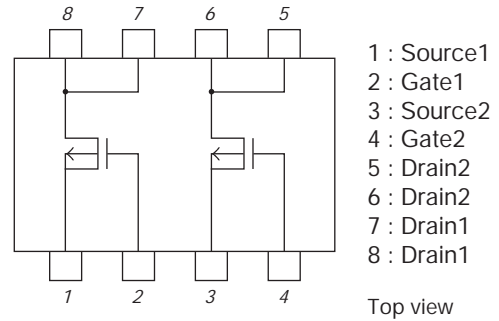
## Package Dimensions

unit : mm (typ)

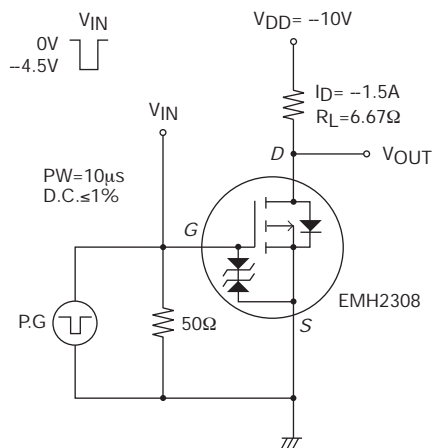
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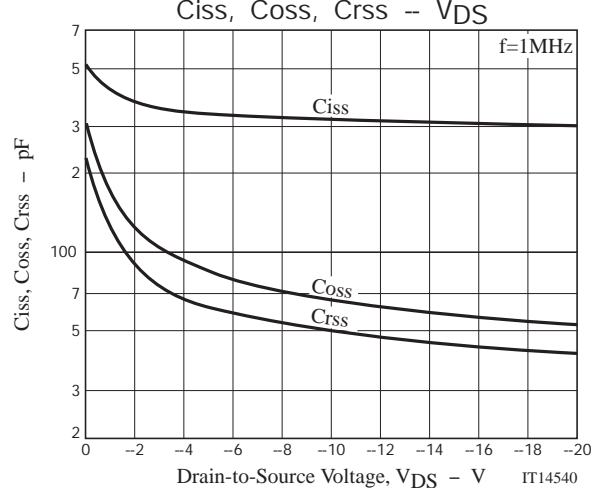
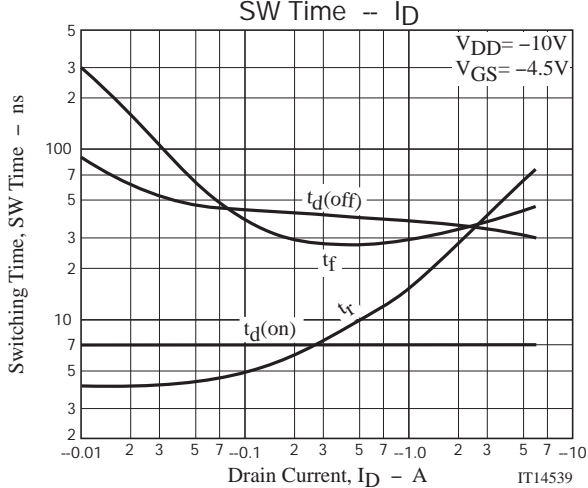
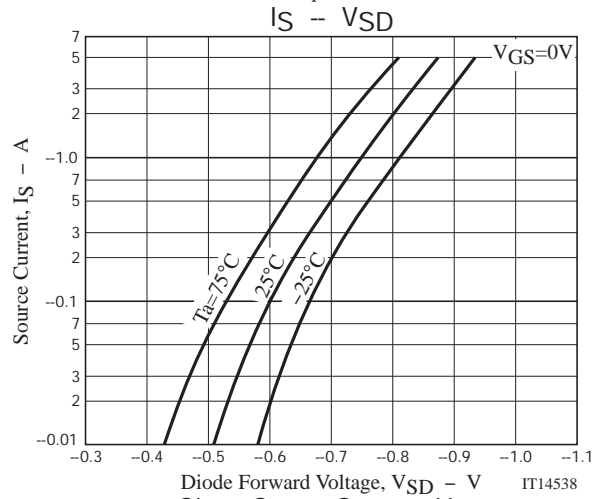
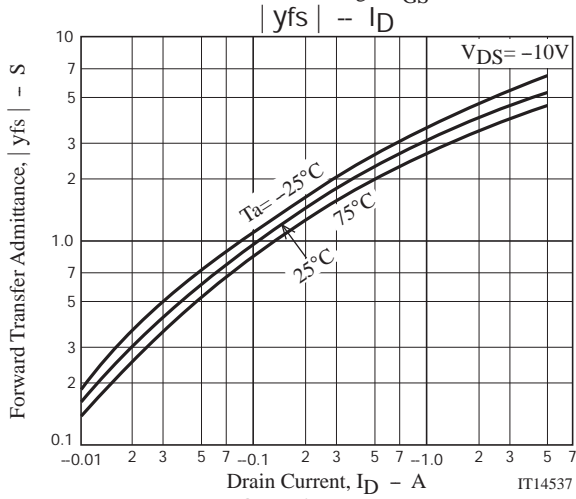
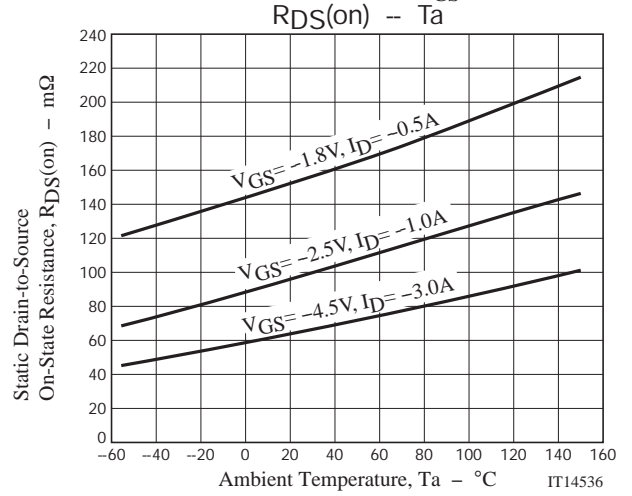
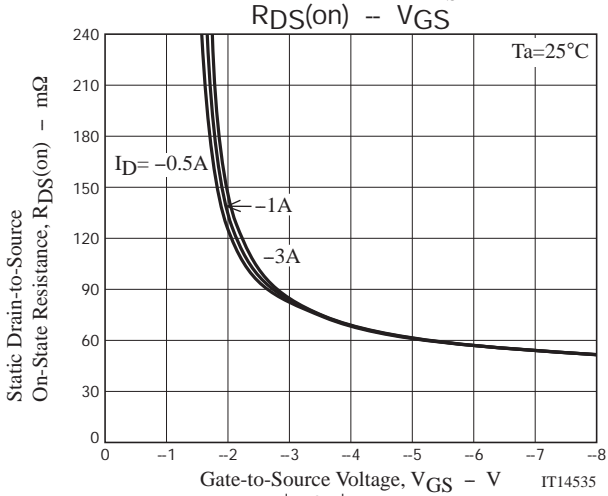
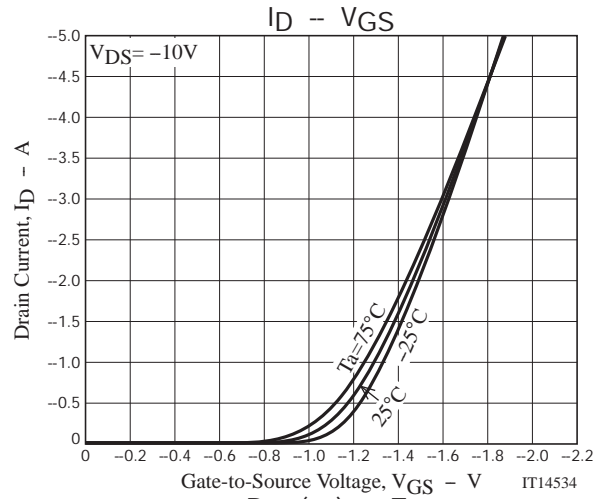
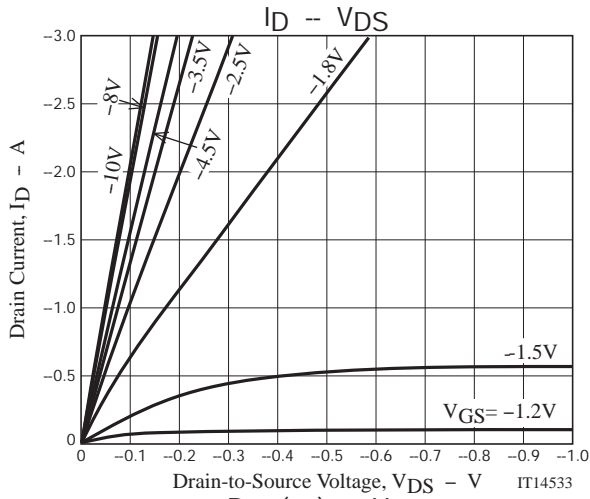


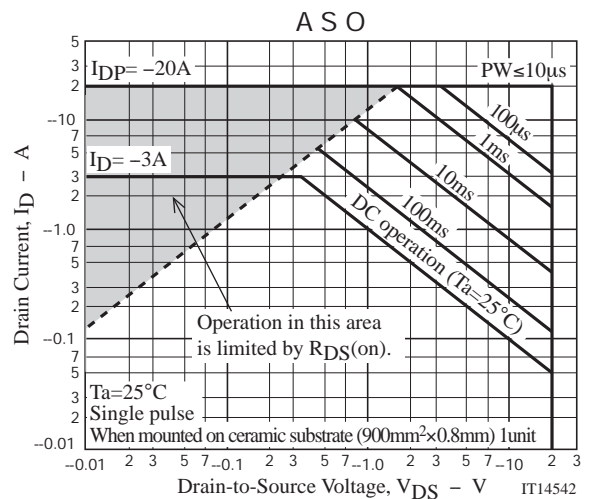
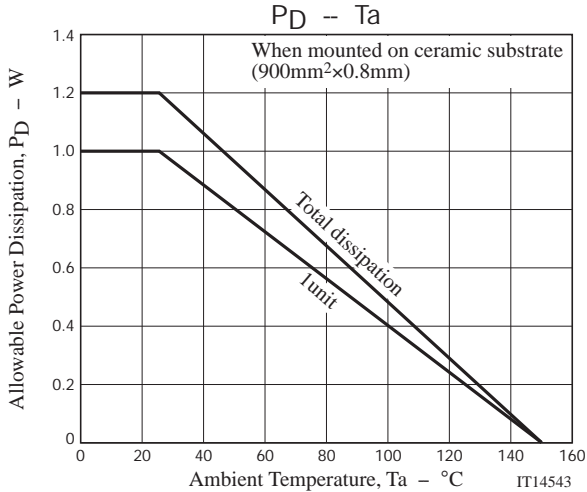
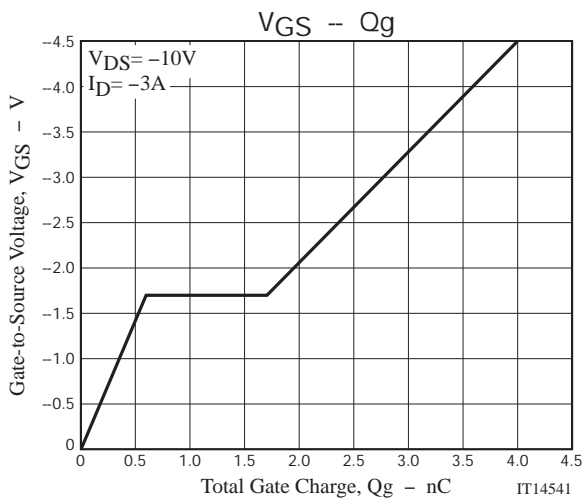
## Electrical Connection



## Switching Time Test Circuit







Note on usage : Since the EMH2308 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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