



EMH2301 — P-Channel Silicon MOSFET General-Purpose Switching Device Applications

Features

- The EMH2301 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	P-channel	Unit
Drain-to-Source Voltage	V _{DSS}		-20	V
Gate-to-Source Voltage	V _{GSS}		±12	V
Drain Current (DC)	I _D		-2	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-8	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² ×0.8mm) 1unit	1.0	W
Total Dissipation	P _T	Mounted on a ceramic board (900mm ² ×0.8mm)	1.2	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

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	-20			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _D =-20V, V _{GS} =0V			-1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _D =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _D =-10V, I _D =-1mA	-0.4		-1.4	V
Forward Transfer Admittance	y _{fs}	V _D =-10V, I _D =-1A	1.9	3.2		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =-1A, V _{GS} =-4V		115	150	mΩ
	R _{DS(on)2}	I _D =-0.5A, V _{GS} =-2.5V		165	235	mΩ
	R _{DS(on)3}	I _D =-0.3A, V _{GS} =-1.8V		260	520	mΩ
Input Capacitance	C _{iss}	V _D =-10V, f=1MHz		420		pF
Output Capacitance	C _{oss}	V _D =-10V, f=1MHz		73		pF
Reverse Transfer Capacitance	C _{rss}	V _D =-10V, f=1MHz		60		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		11.8		ns
Rise Time	t _r	See specified Test Circuit.		33		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		48		ns
Fall Time	t _f	See specified Test Circuit.		43		ns

Marking : MA

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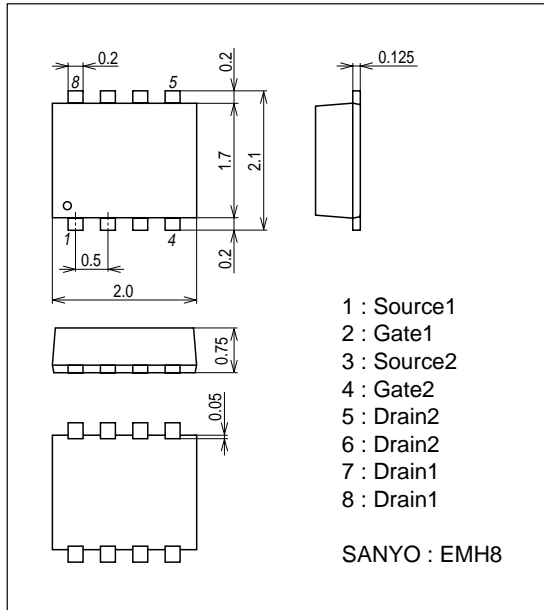
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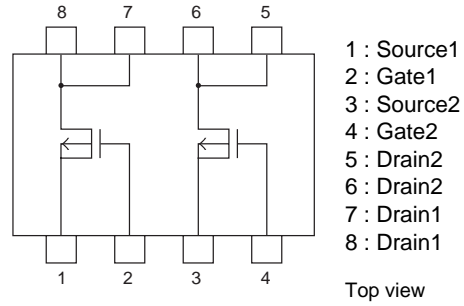
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=-10V, V_{GS}=-4V, I_D=-2A$		4.7		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-10V, V_{GS}=-4V, I_D=-2A$		0.75		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-10V, V_{GS}=-4V, I_D=-2A$		1.6		nC
Diode Forward Voltage	VSD	$I_S=-2A, V_{GS}=0V$		-0.83	-1.2	V

Package Dimensions

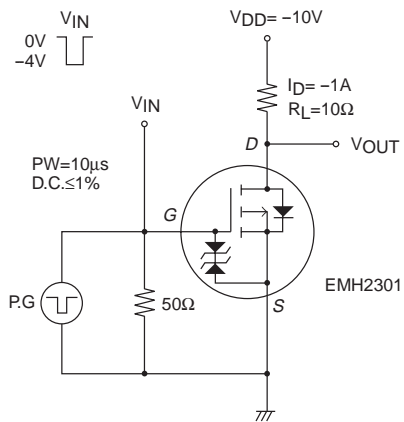
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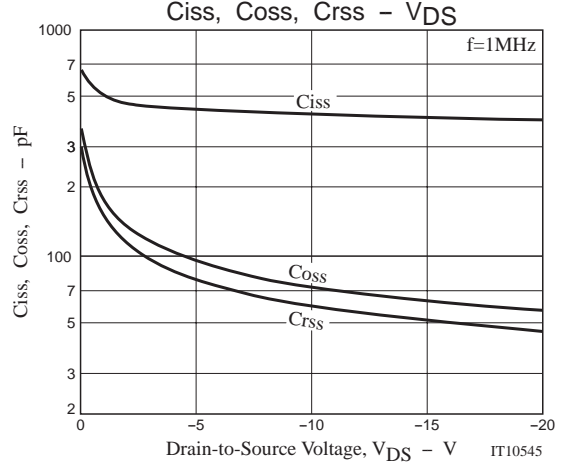
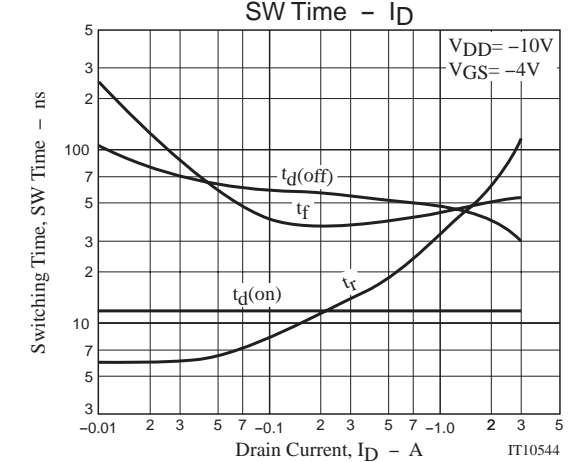
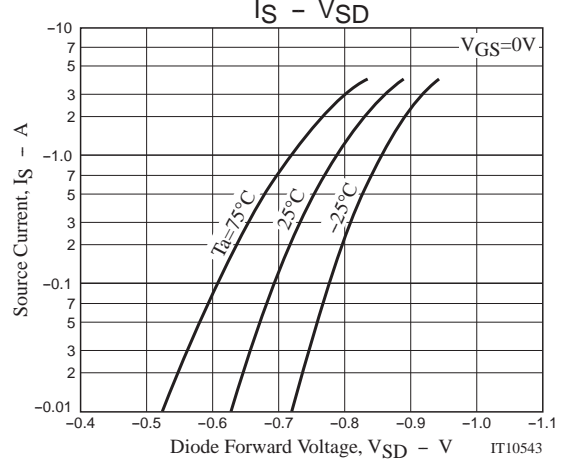
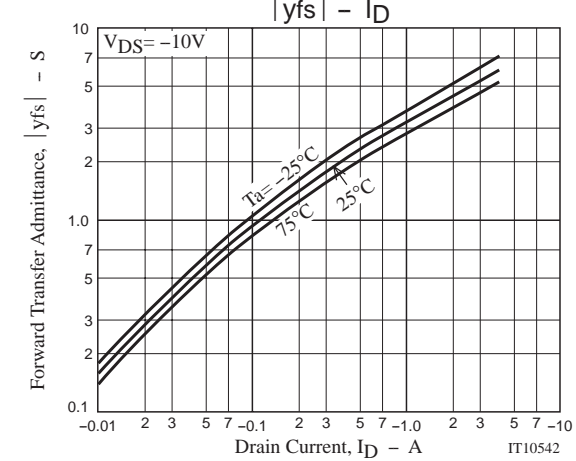
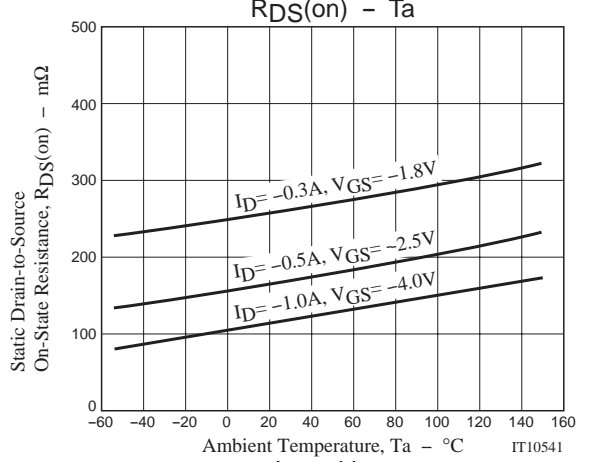
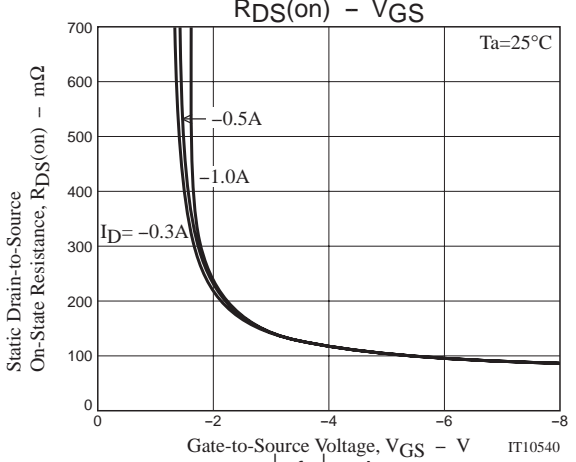
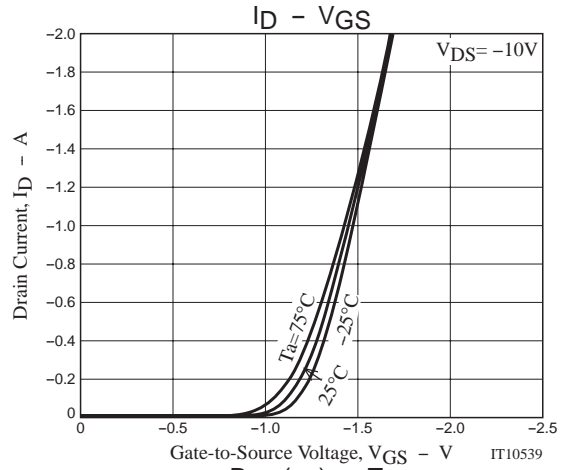
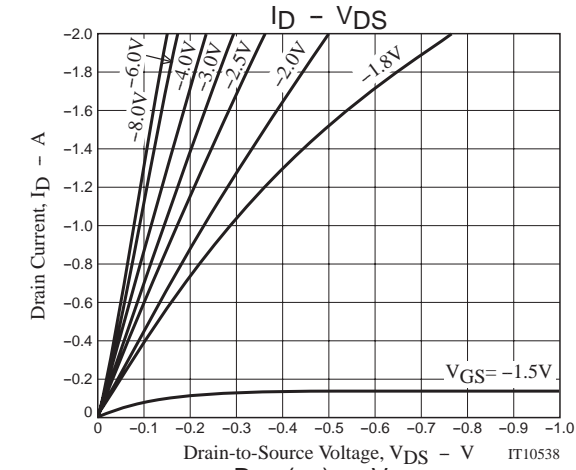
Electrical Connection



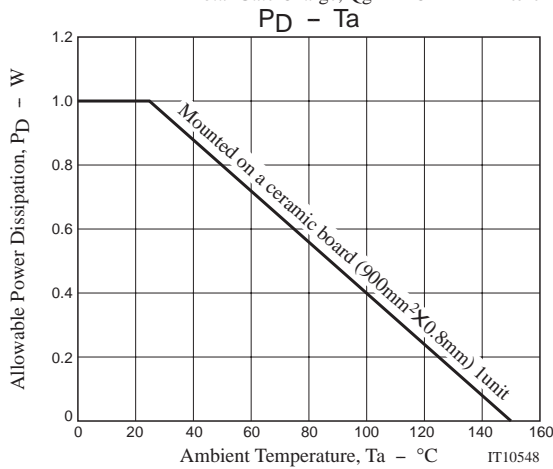
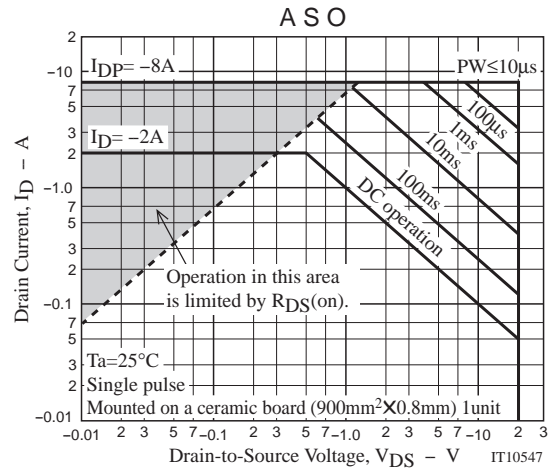
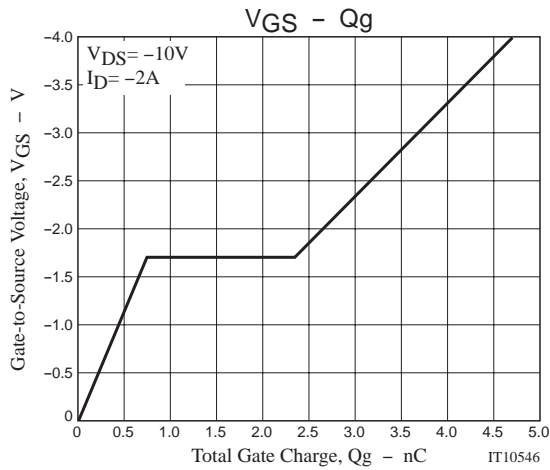
Switching Time Test Circuit



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Note on usage : Since the EMH2301 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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