



SANYO Semiconductors

DATA SHEET

EMH2302 — P-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- The EMH2302 incorporates a P-channel MOSFET that feature low ON-resistance and ultrahigh-speed switching, thereby enabling high-density mounting.
- 4V drive.

Specifications

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

Parameter	Symbol	Conditions	P-channel	Unit
Drain-to-Source Voltage	V_{DS}		-30	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		-2	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	-8	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm ² X0.8mm) 1unit	1.0	W
Total Dissipation	P_T	Mounted on a ceramic board (900mm ² X0.8mm)	1.2	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30\text{V}$, $V_{GS} = 0\text{V}$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 16\text{V}$, $V_{DS} = 0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}$, $I_D = -1\text{mA}$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}$, $I_D = -1\text{A}$	1.3	2.2		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -1\text{A}$, $V_{GS} = -10\text{V}$		115	150	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -0.5\text{A}$, $V_{GS} = -4\text{V}$		215	310	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -10\text{V}$, $f = 1\text{MHz}$		285		pF
Output Capacitance	C_{oss}	$V_{DS} = -10\text{V}$, $f = 1\text{MHz}$		65		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -10\text{V}$, $f = 1\text{MHz}$		52		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		8.4		ns
Rise Time	t_r	See specified Test Circuit.		15.5		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		29		ns
Fall Time	t_f	See specified Test Circuit.		25.5		ns

Marking : MB

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EMH2302

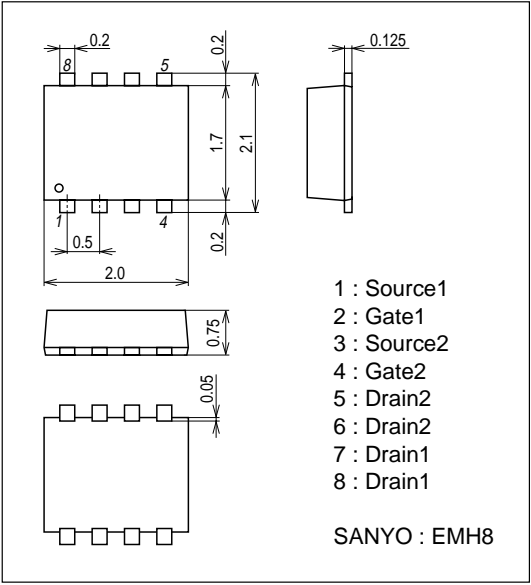
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$		6.7		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$		1.1		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$		1.05		nC
Diode Forward Voltage	VSD	$I_S=-2A, V_{GS}=0V$		-0.85	-1.2	V

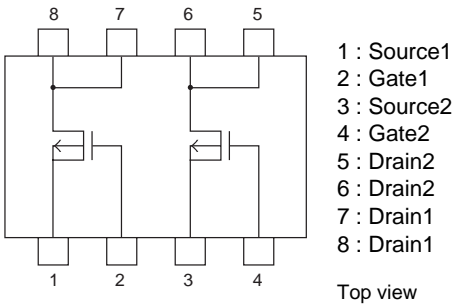
Package Dimensions

unit : mm (typ)

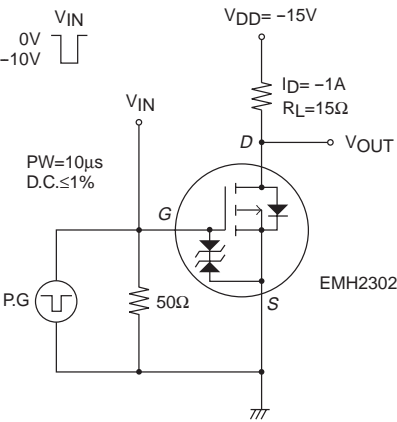
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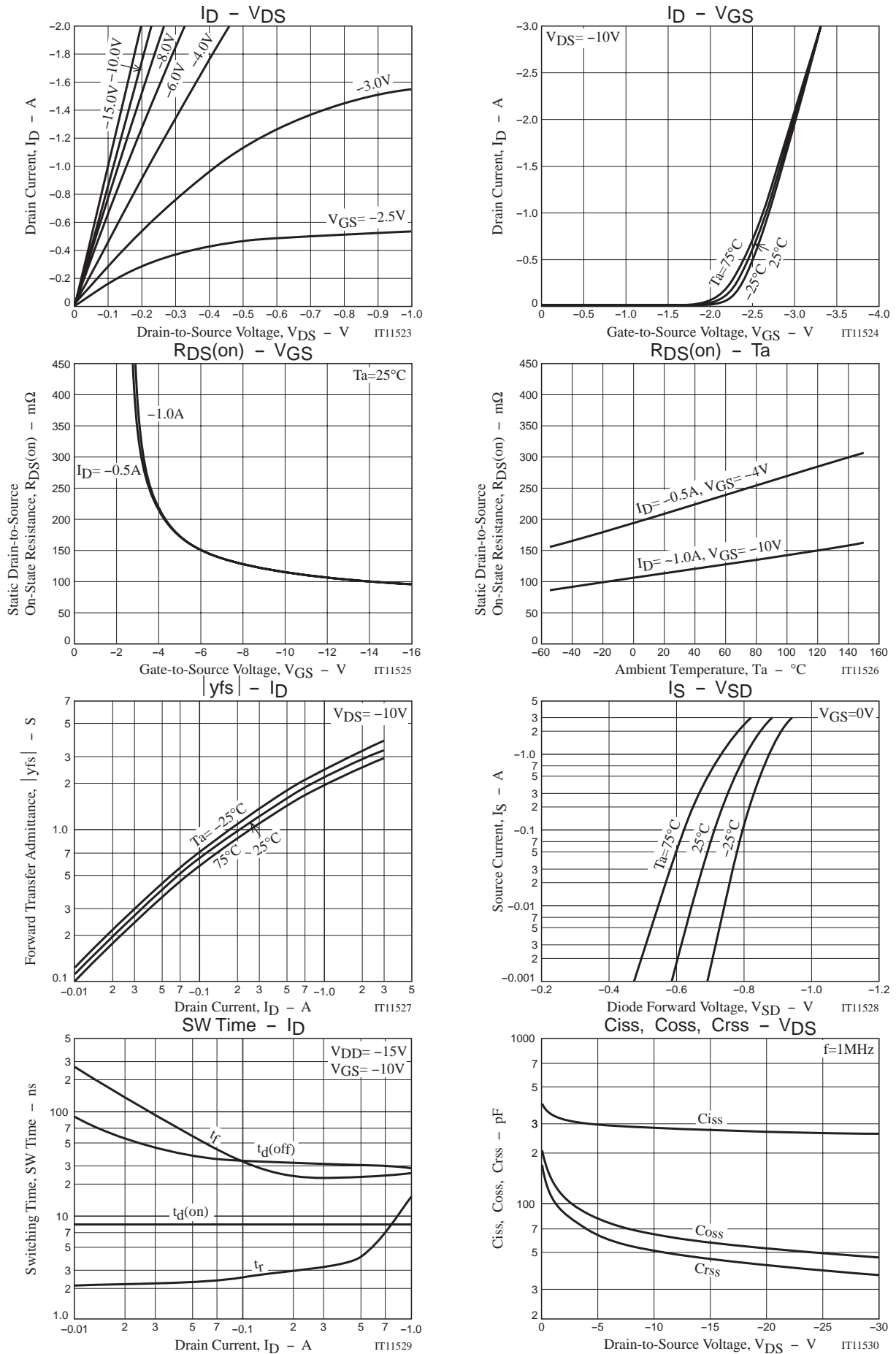


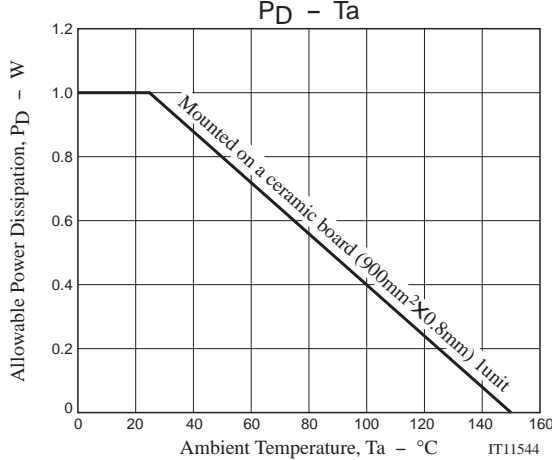
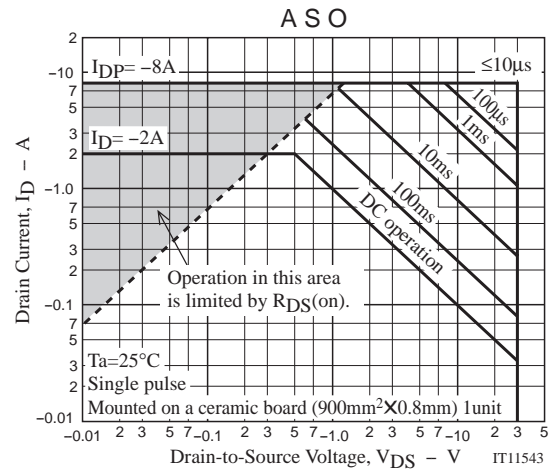
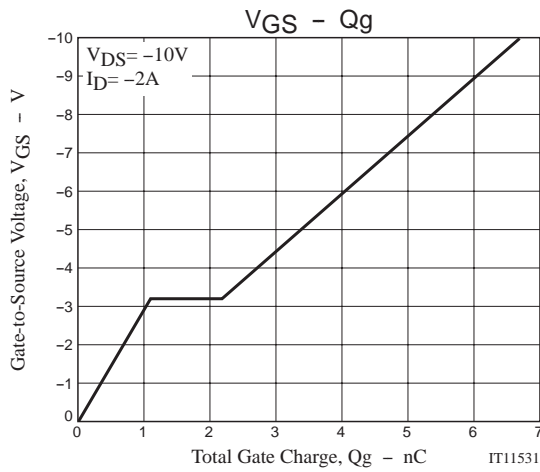
Electrical Connection



Switching Time Test Circuit







Note on usage : Since the EMH2302 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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