



P-Channel Silicon MOSFET
ECH8301 — General-Purpose Switching Device
Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		-20	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		-8	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-40	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² X0.8mm)	1.6	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 _{DS} =-20V, V _{GS} =0V			-1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =-10V, I _D =-1mA	-0.4		-1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =-10V, I _D =-4A	11	16		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =-4A, V _{GS} =-4V		18	24	mΩ
	R _{DS(on)2}	I _D =-2A, V _{GS} =-2.5V		26	37	mΩ
Input Capacitance	C _{iss}	V _{DS} =-10V, f=1MHz		1700		pF
Output Capacitance	C _{oss}	V _{DS} =-10V, f=1MHz		330		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =-10V, f=1MHz		250		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		29		ns
Rise Time	t _r	See specified Test Circuit.		120		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		230		ns
Fall Time	t _f	See specified Test Circuit.		150		ns

Marking : JA

Continued on next page.

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ECH8301

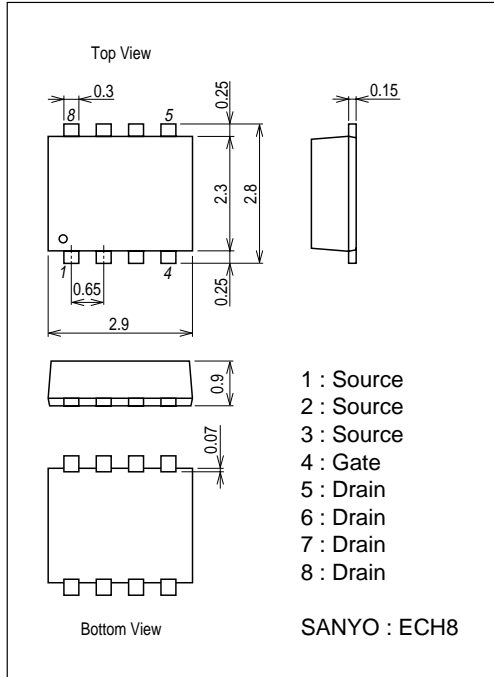
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=-10V, V_{GS}=-4V, I_D=-8A$		21		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-10V, V_{GS}=-4V, I_D=-8A$		2.8		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-10V, V_{GS}=-4V, I_D=-8A$		7.5		nC
Diode Forward Voltage	VSD	$I_S=-8A, V_{GS}=0V$		-0.82	-1.2	V

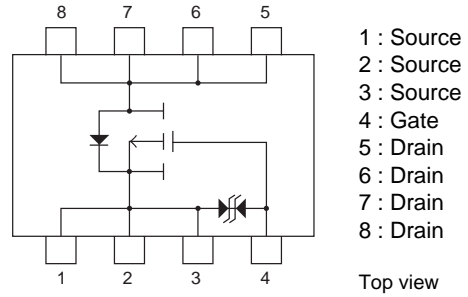
Package Dimensions

unit : mm

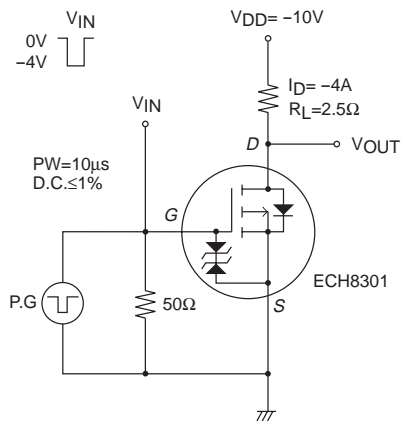
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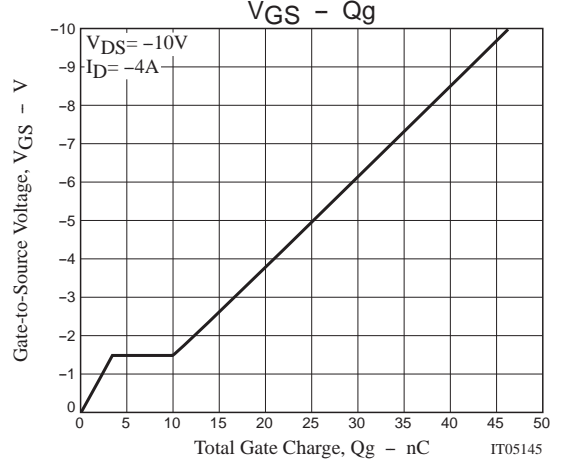
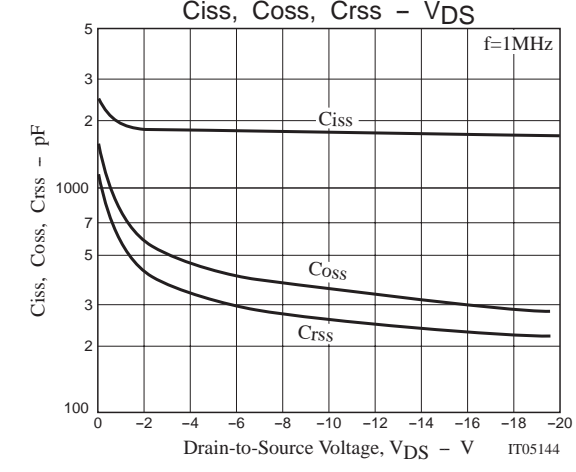
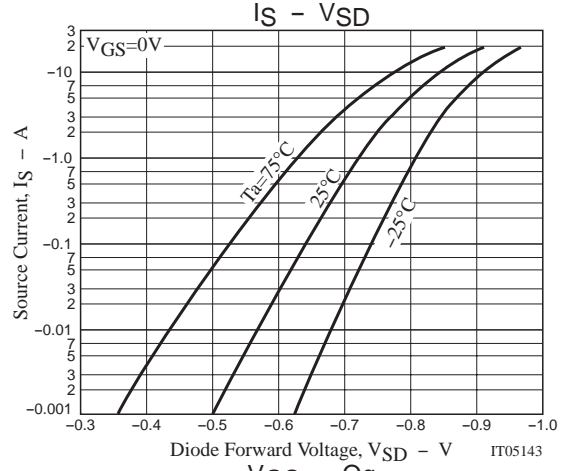
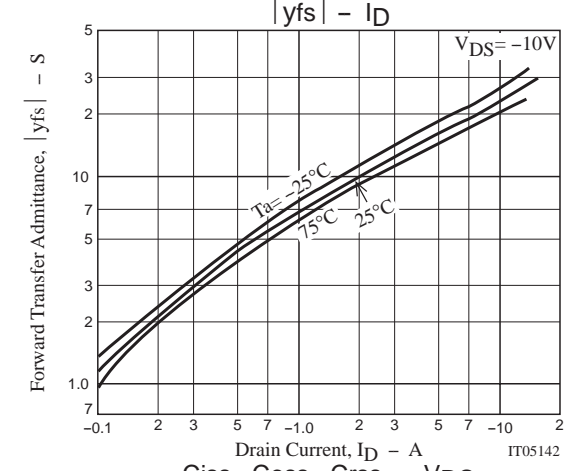
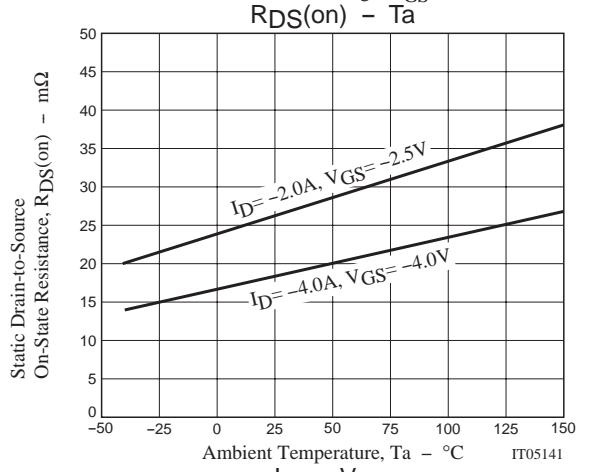
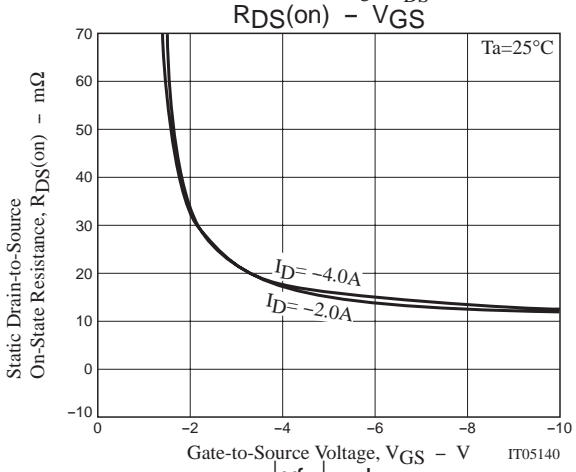
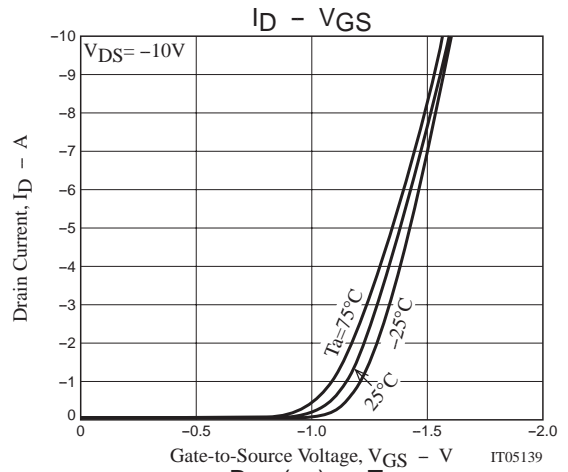
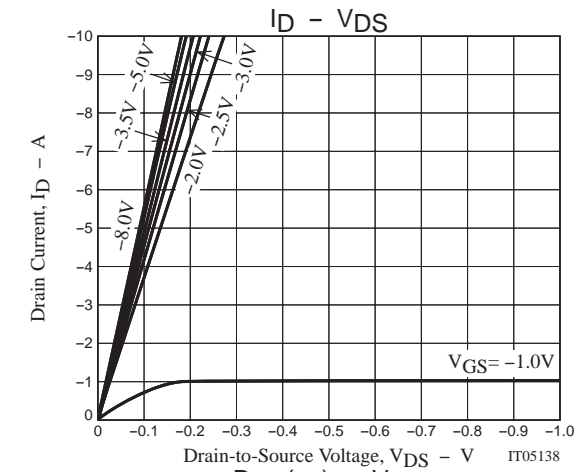


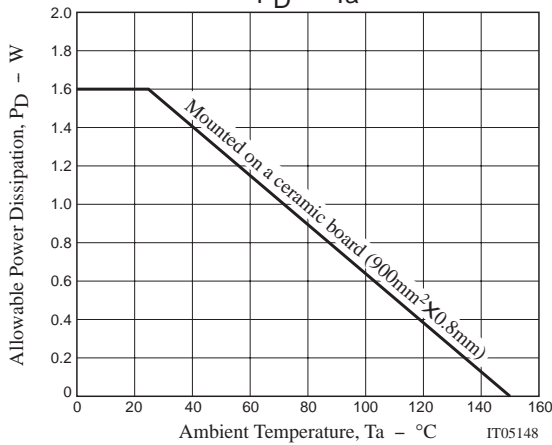
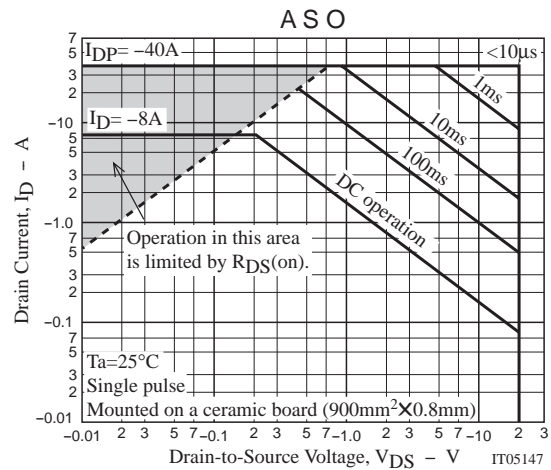
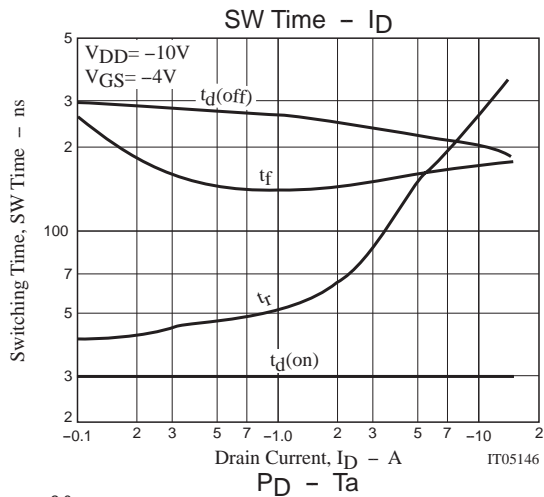
Electrical Connection



Switching Time Test Circuit







Note on usage : Since the ECH8301 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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