



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## ECH8410 — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- 4V drive.
- Halogen free compliance.

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		30	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		12	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	60	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.6	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	30			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	1.2		2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =6A		7.5		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =6A, V <sub>GS</sub> =10V		7.5	10	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =3A, V <sub>GS</sub> =4.5V		13	18.2	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =3A, V <sub>GS</sub> =4V		15.5	22	mΩ

Marking : KQ

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# ECH8410

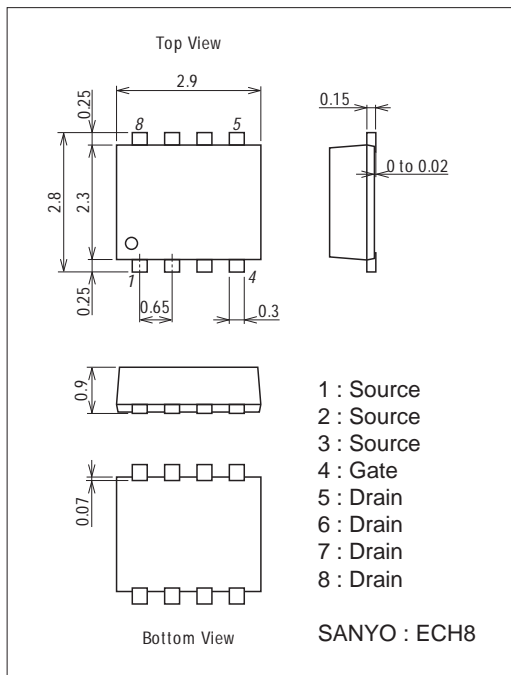
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=10V, f=1MHz$		1700		pF
Output Capacitance	Coss	$V_{DS}=10V, f=1MHz$		300		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=10V, f=1MHz$		200		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		17		ns
Rise Time	$t_r$	See specified Test Circuit.		50		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		110		ns
Fall Time	$t_f$	See specified Test Circuit.		72		ns
Total Gate Charge	Qg	$V_{DS}=15V, V_{GS}=10V, I_D=12A$		31		nC
Gate-to-Source Charge	Qgs	$V_{DS}=15V, V_{GS}=10V, I_D=12A$		5.5		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=15V, V_{GS}=10V, I_D=12A$		5.5		nC
Diode Forward Voltage	VSD	$I_S=12A, V_{GS}=0V$	0.8	1.2		V

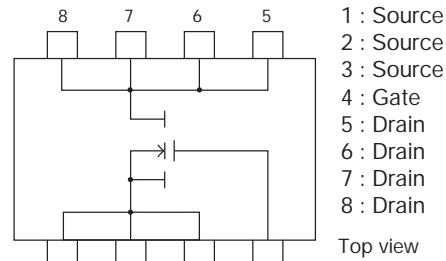
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unit : mm (typ)

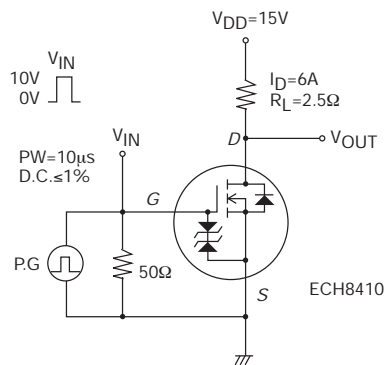
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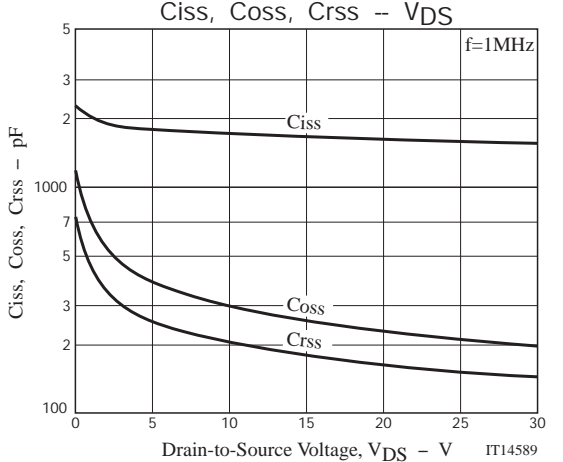
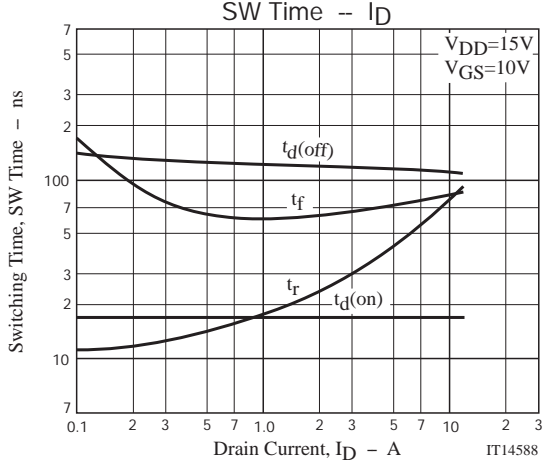
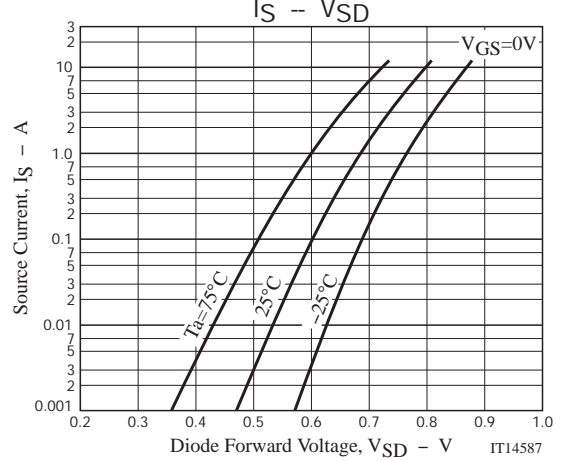
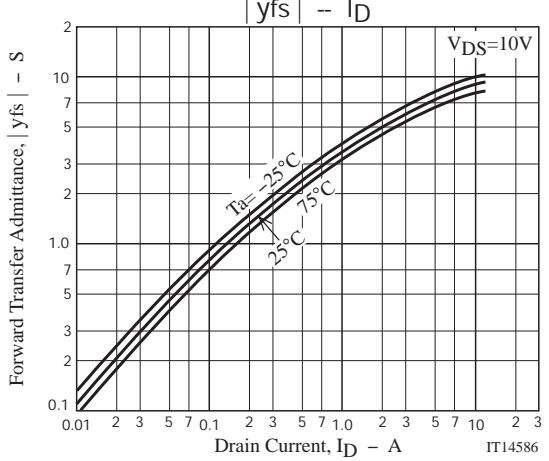
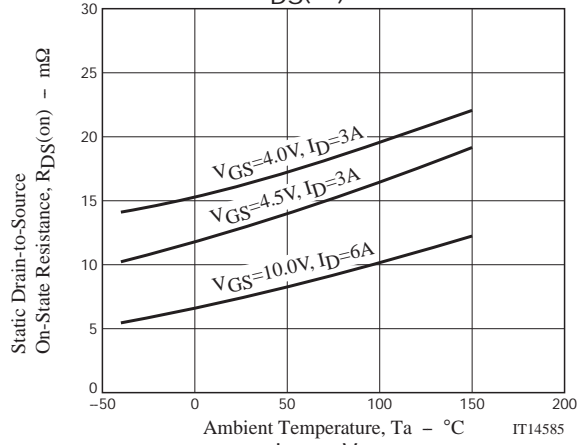
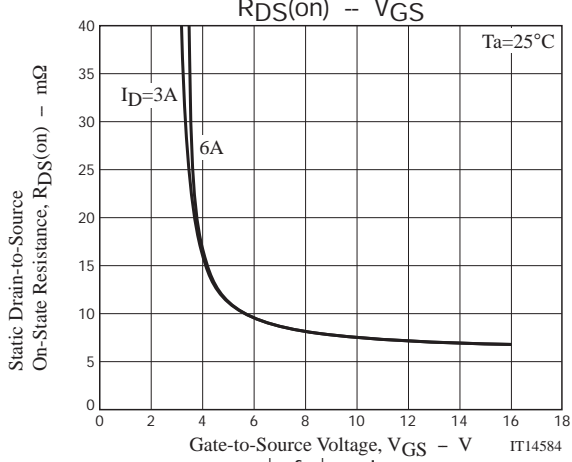
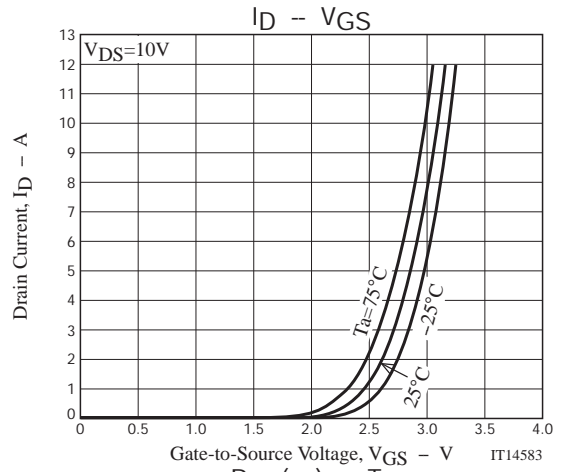
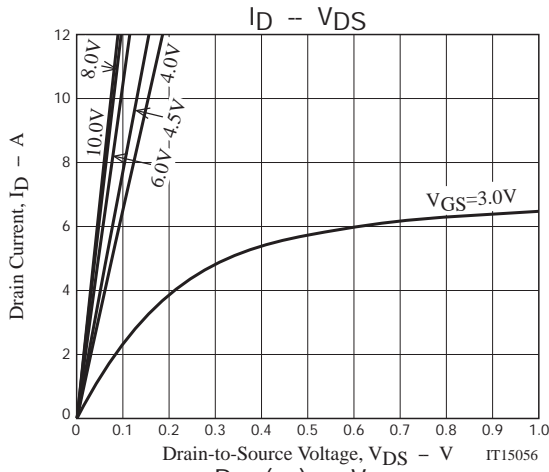


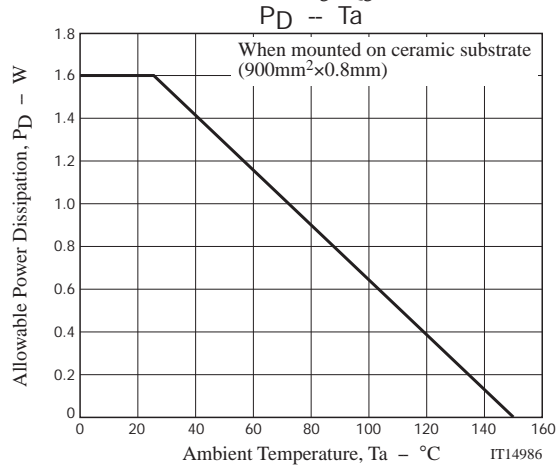
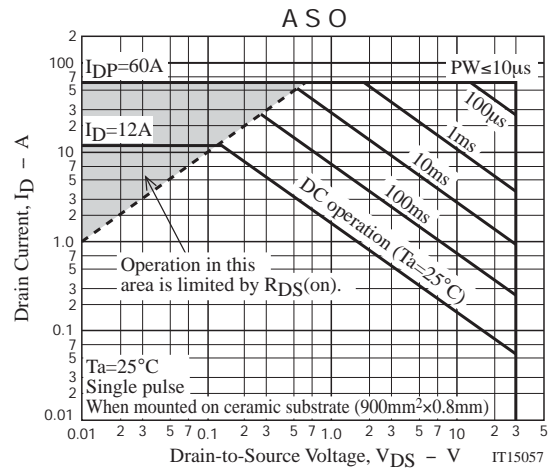
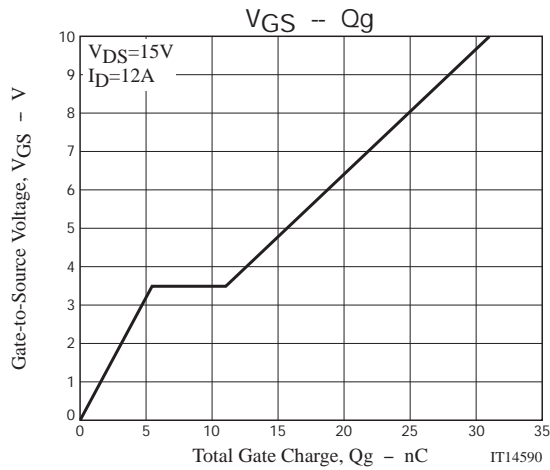
## Electrical Connection



## Switching Time Test Circuit







Note on usage : Since the ECH8410 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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