



ECH8309

P-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- 1.8V drive.
- Halogen free compliance.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		-12	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		-9.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-40	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (900mm ² ×0.8mm)	1.5	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	-12			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =-12V, V _{GS} =0V			-10	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =-6V, I _D =-1mA	-0.4		-1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =-6V, I _D =-4.5A	9.6	16		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =-4.5A, V _{GS} =-4.5V		12	16	mΩ
	R _{DS(on)2}	I _D =-2A, V _{GS} =-2.5V		18	26	mΩ
	R _{DS(on)3}	I _D =-1A, V _{GS} =-1.8V		30	53	mΩ

Marking : JL

Continued on next page.

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ECH8309

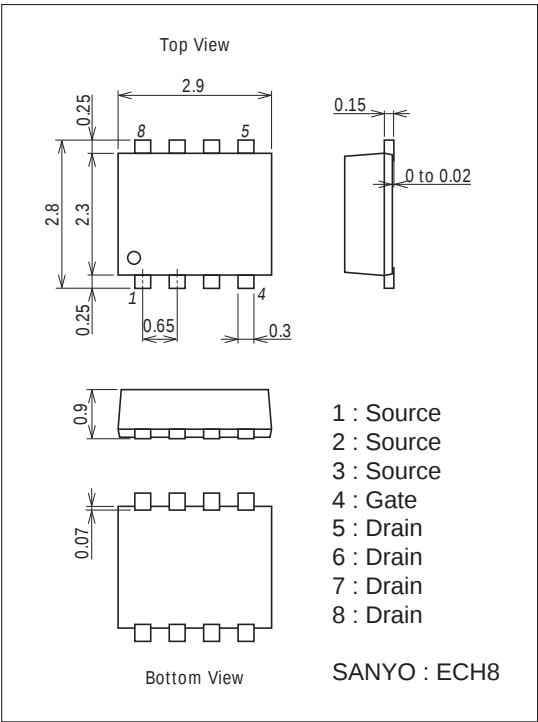
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS} = -6V, f = 1MHz$		1780		pF
Output Capacitance	Coss	$V_{DS} = -6V, f = 1MHz$		540		pF
Reverse Transfer Capacitance	Crss	$V_{DS} = -6V, f = 1MHz$		390		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		22		ns
Rise Time	t_r	See specified Test Circuit.		110		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		157		ns
Fall Time	t_f	See specified Test Circuit.		123		ns
Total Gate Charge	Qg	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -9.5A$		18		nC
Gate-to-Source Charge	Qgs	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -9.5A$		2.8		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -9.5A$		4.9		nC
Diode Forward Voltage	VSD	$I_S = -9.5A, V_{GS} = 0V$		-0.8	-1.2	V

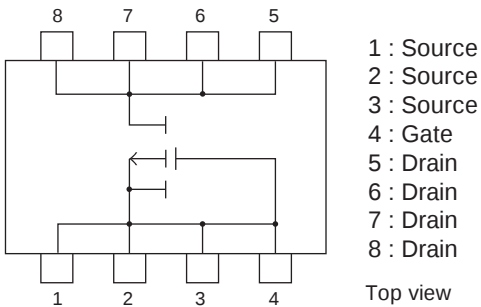
Package Dimensions

unit : mm (typ)

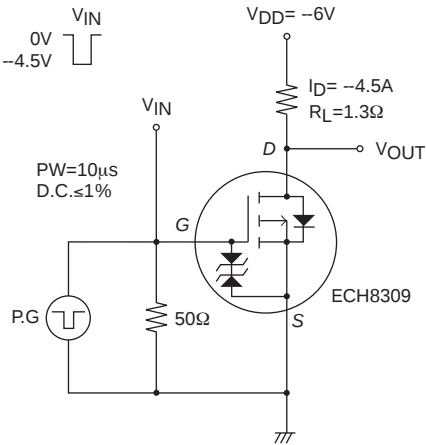
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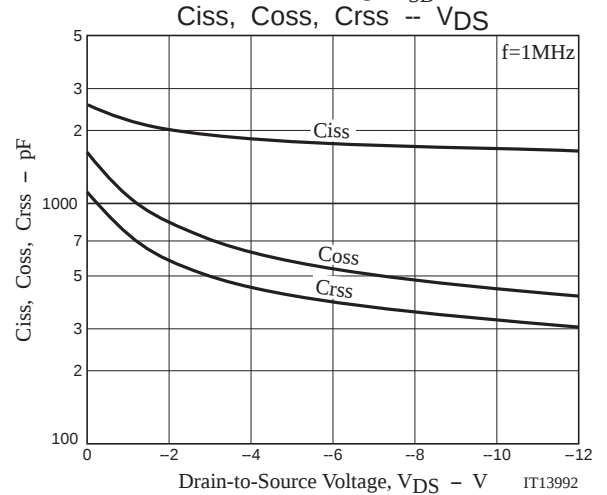
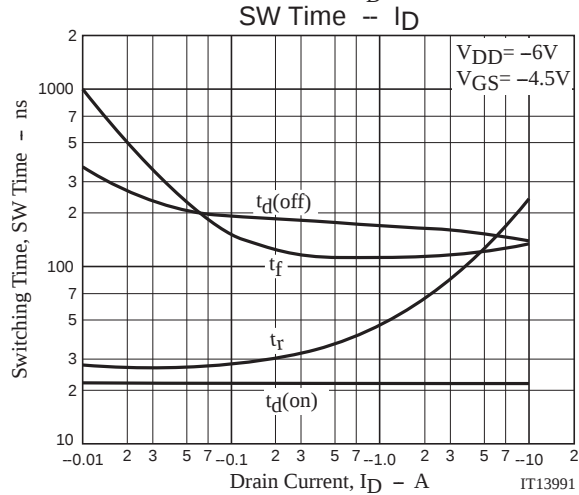
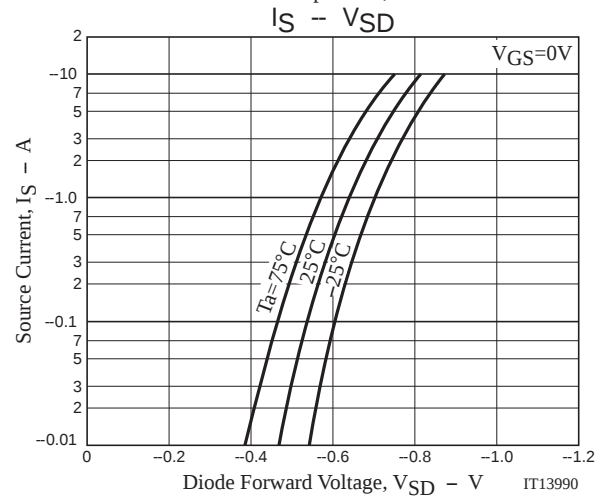
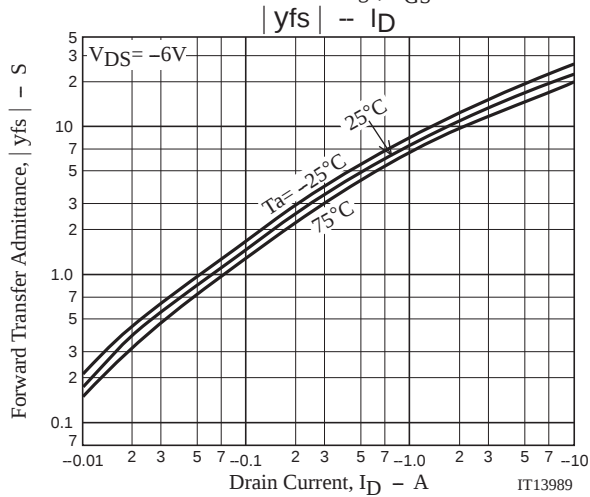
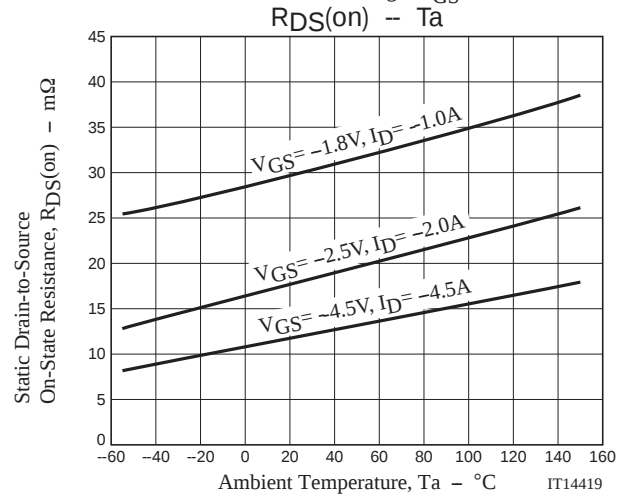
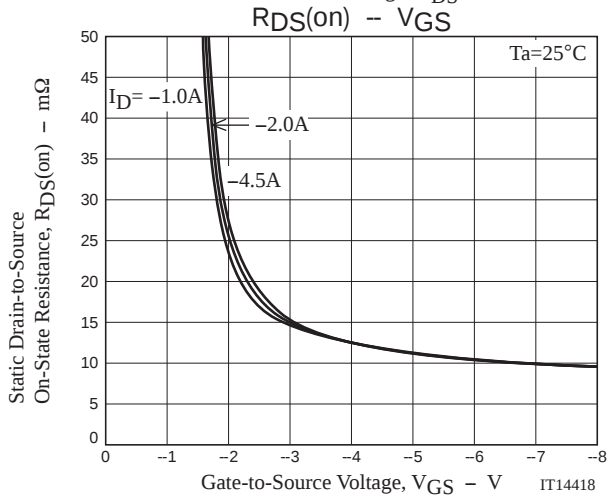
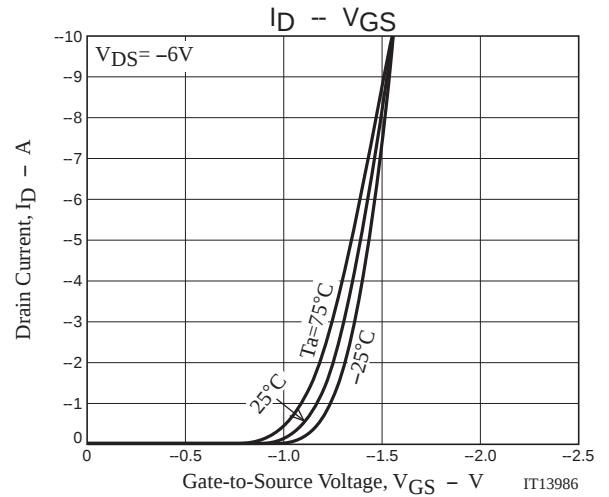
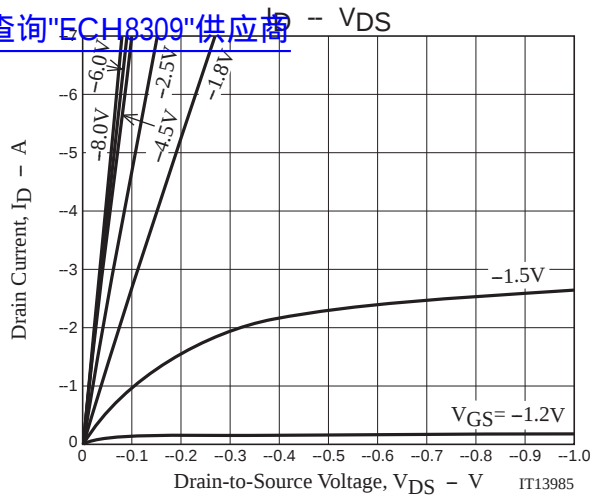


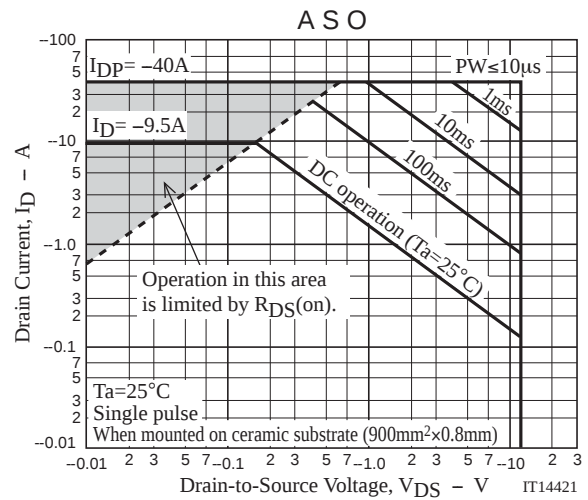
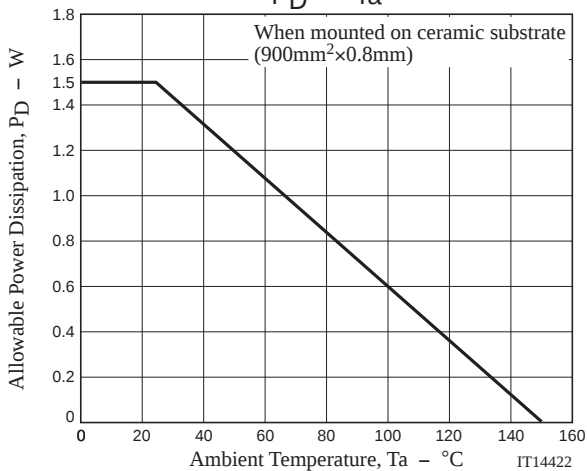
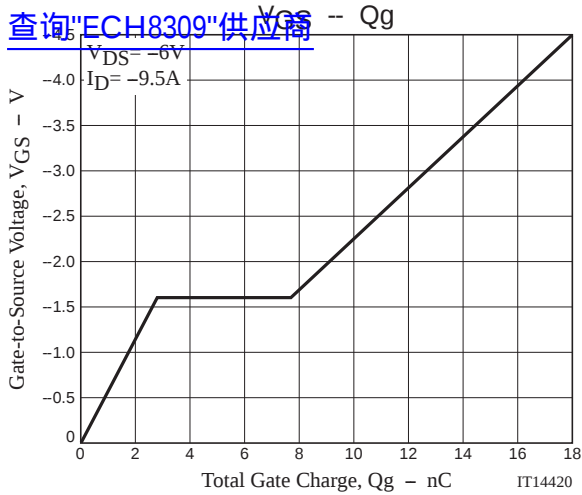
Electrical Connection



Switching Time Test Circuit



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Note on usage : Since the ECH8309 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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