



ECH8320 — P-Channel Silicon MOSFET

General-Purpose Switching Device

Applications

Features

- Low ON-resistance.
- 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}		-20	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 cycles≤1%	-40	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (900mm ² ×0.8mm)	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 =-5A		16		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =-5A, V _{GS} =-4.5V		11	14.5	mΩ
	R _{DS(on)2}	I _D =-3A, V _{GS} =-2.5V		16	23	mΩ
	R _{DS(on)3}	I _D =-1A, V _{GS} =-1.8V		25	39	mΩ

Marking : YA

Continued on next page.

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ECH8320

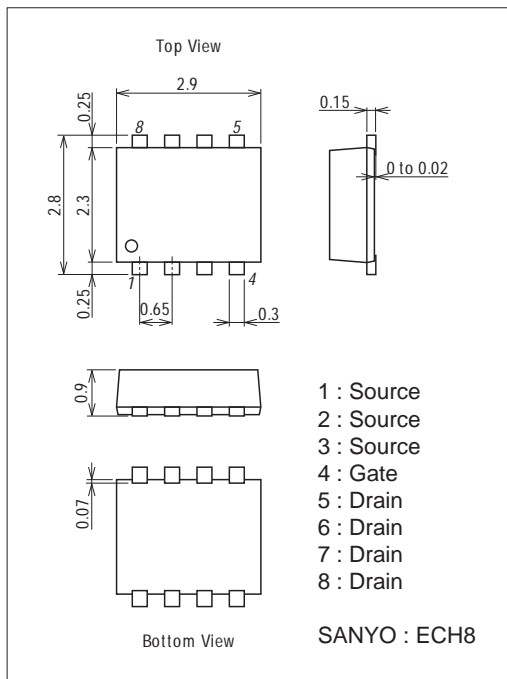
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS} = -10V, f = 1MHz$		2300		pF
Output Capacitance	Coss	$V_{DS} = -10V, f = 1MHz$		440		pF
Reverse Transfer Capacitance	Crss	$V_{DS} = -10V, f = 1MHz$		340		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		24		ns
Rise Time	t_r	See specified Test Circuit.		100		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		230		ns
Fall Time	t_f	See specified Test Circuit.		163		ns
Total Gate Charge	Qg	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -9.5A$		25		nC
Gate-to-Source Charge	Qgs	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -9.5A$		3.6		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -9.5A$		7.6		nC
Diode Forward Voltage	VSD	$I_S = -9.5A, V_{GS} = 0V$		-0.79	-1.2	V

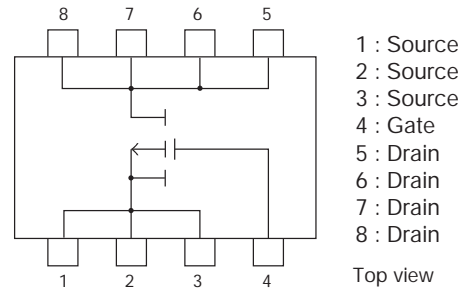
Package Dimensions

unit : mm (typ)

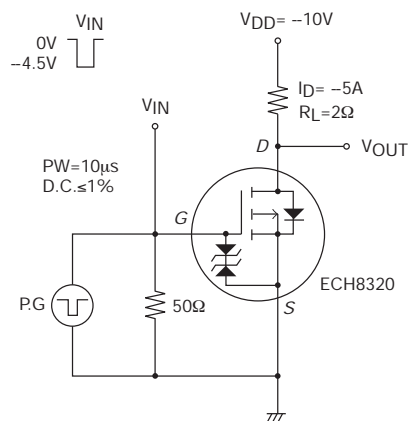
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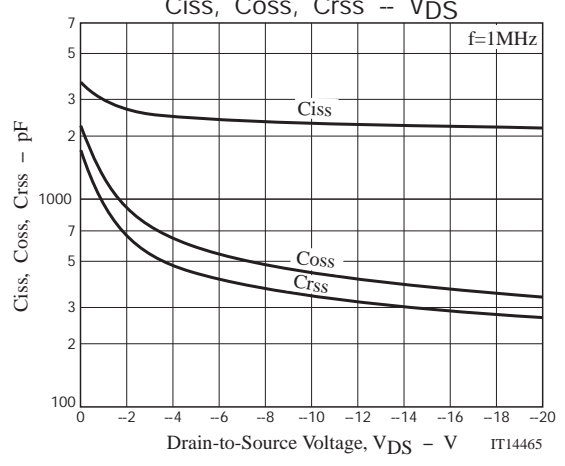
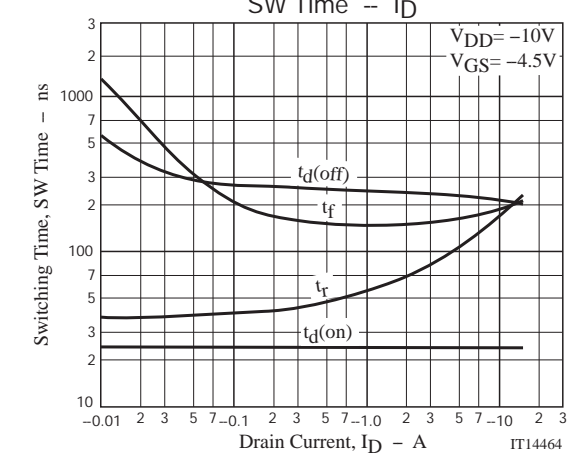
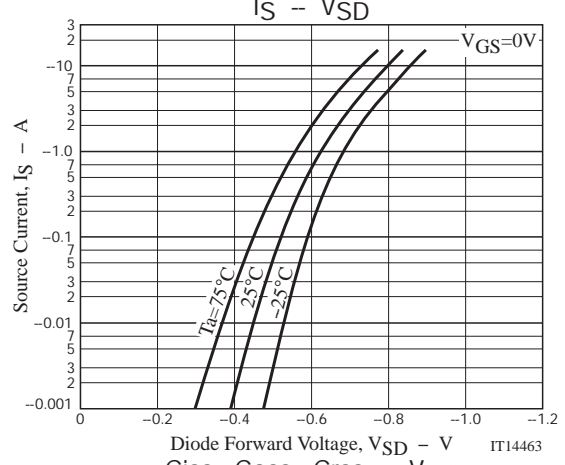
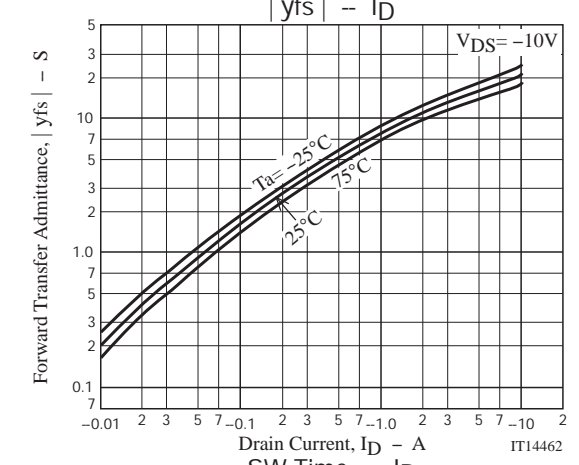
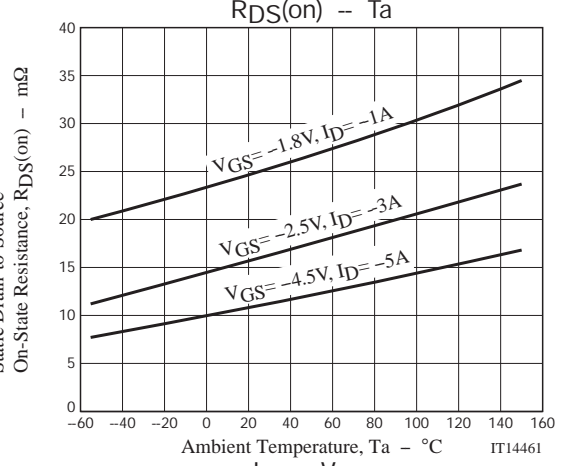
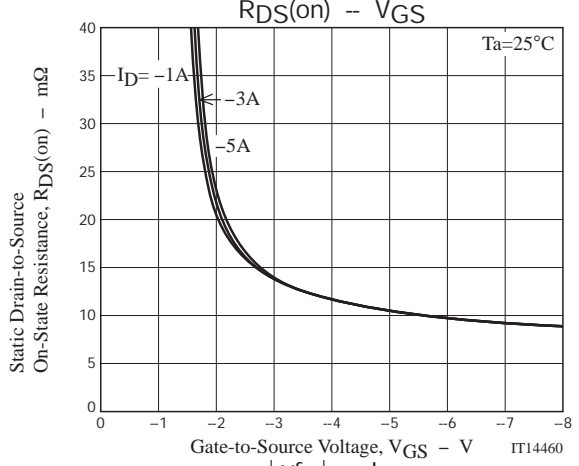
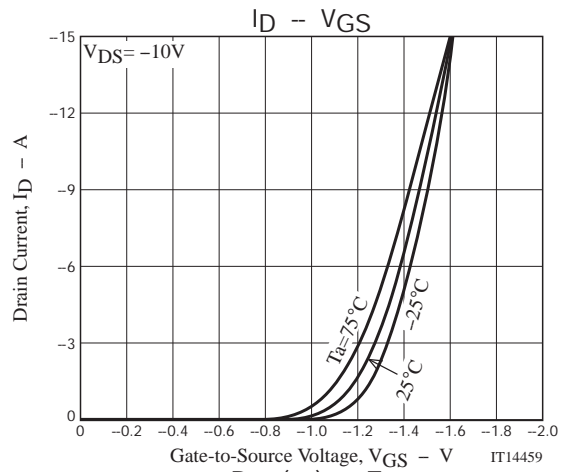
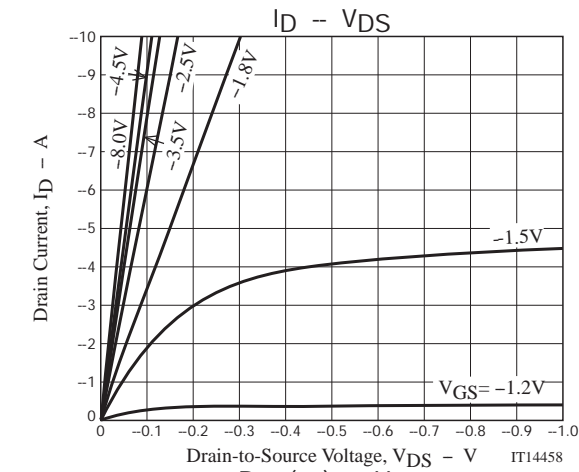


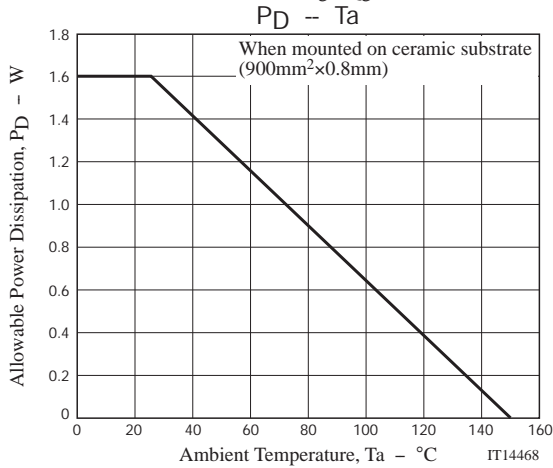
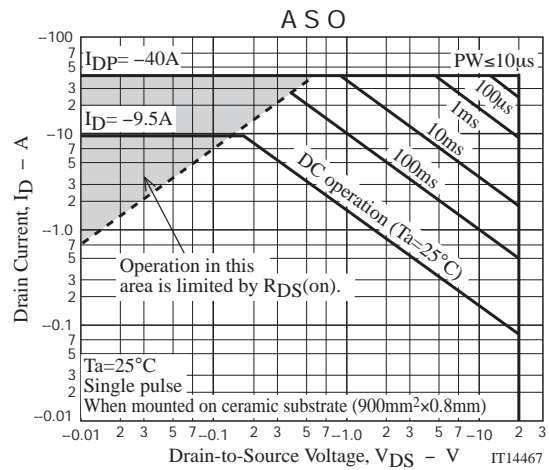
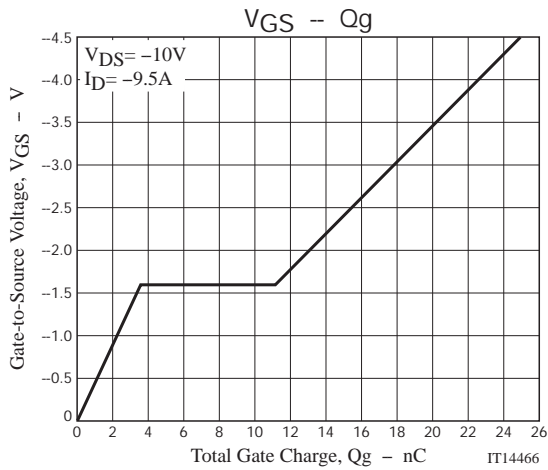
Electrical Connection



Switching Time Test Circuit







Note on usage : Since the ECH8320 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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