


SANYO Semiconductors

DATA SHEET

P-Channel Silicon MOSFET

ECH8652 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- 1.8V drive.
- Composite type, facilitating high-density mounting.
- 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		-6	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) 1unit	1.3	W
Total Power Dissipation	P _T	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 _{DSS1}	V _{DS} =-8V, V _{GS} =0V			-1	μA
	I _{DSS2}	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		-1.4	V
Forward Transfer Admittance	y _{fs}	V _{DS} =-6V, I _D =-3A	6.6	11		S

Marking : WX

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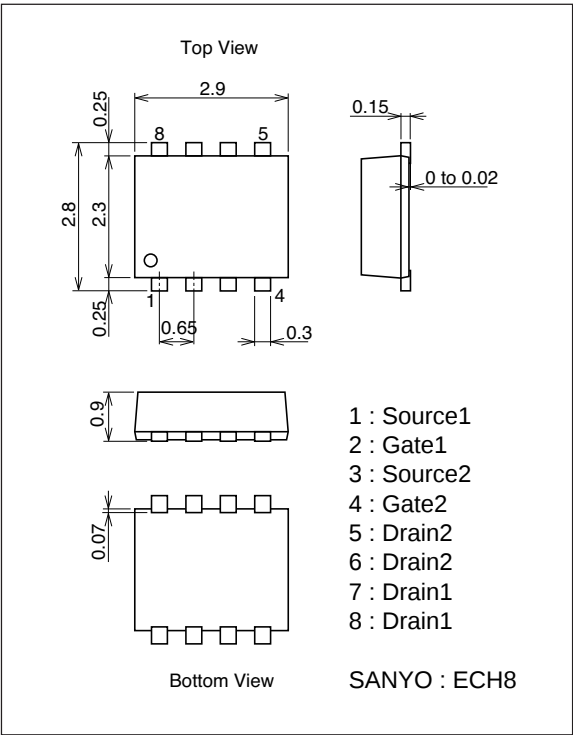
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -3A, V_{GS} = -4.5V$		21	28	$m\Omega$
	$R_{DS(on)2}$	$I_D = -1.5A, V_{GS} = -2.5V$		31	45	$m\Omega$
	$R_{DS(on)3}$	$I_D = -0.5A, V_{GS} = -1.8V$		49	78	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -6V, f = 1MHz$		1000		pF
Output Capacitance	C_{oss}	$V_{DS} = -6V, f = 1MHz$		320		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -6V, f = 1MHz$		250		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		11		ns
Rise Time	t_r	See specified Test Circuit.		72		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		105		ns
Fall Time	t_f	See specified Test Circuit.		87		ns
Total Gate Charge	Q_g	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -6A$		11		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -6A$		1.5		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -6A$		2.9		nC
Diode Forward Voltage	V_{SD}	$I_S = -6A, V_{GS} = 0V$		-0.81	-1.2	V

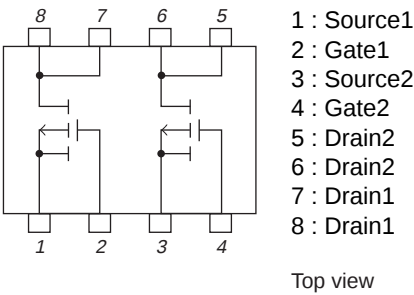
Package Dimensions

unit : mm (typ)

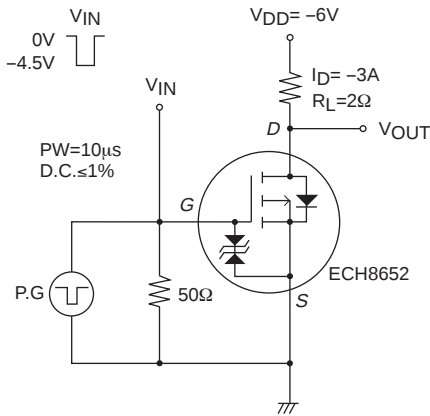
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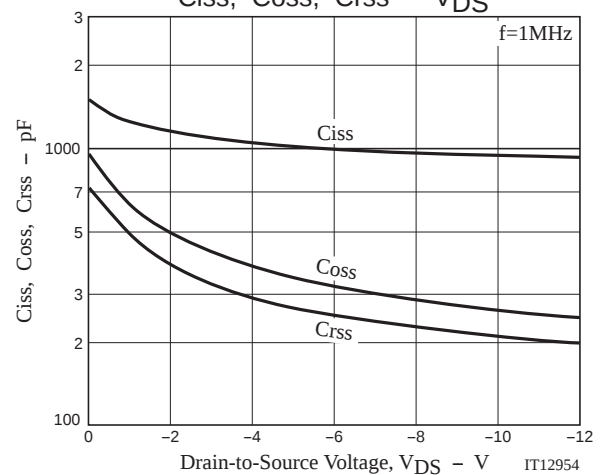
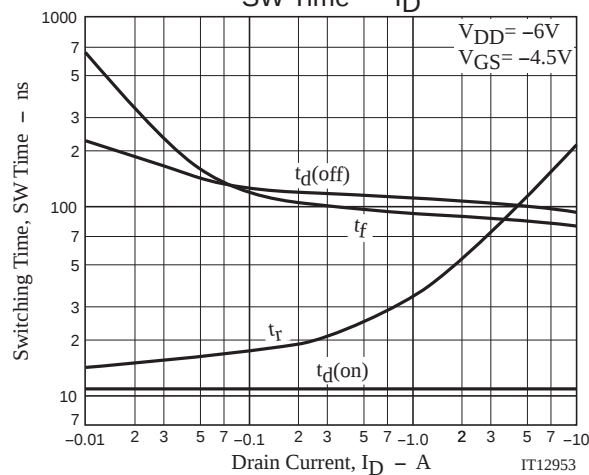
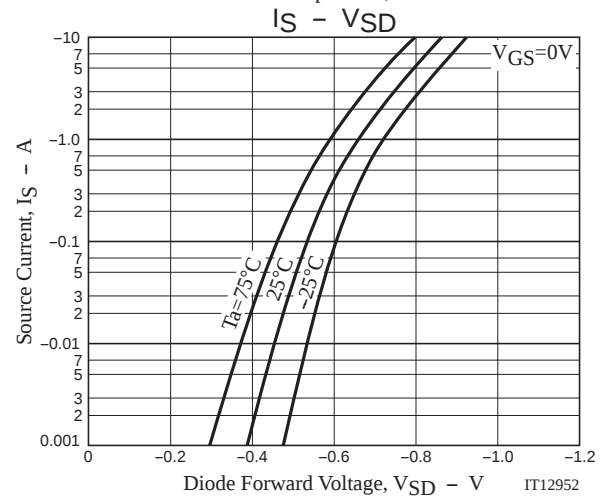
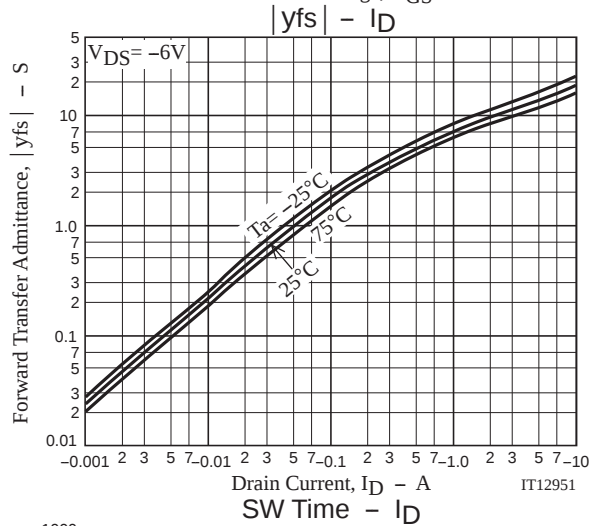
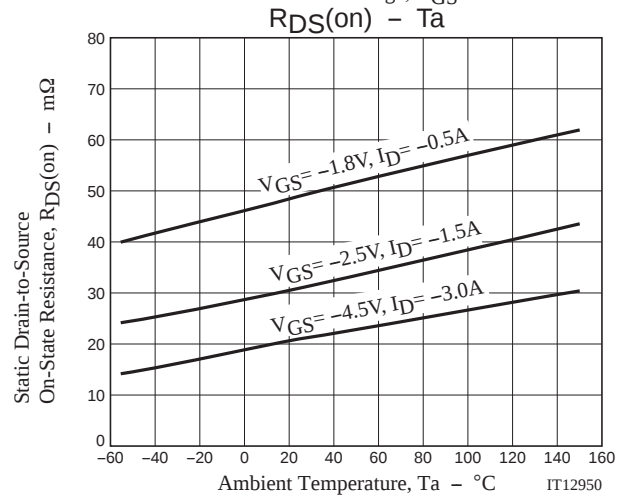
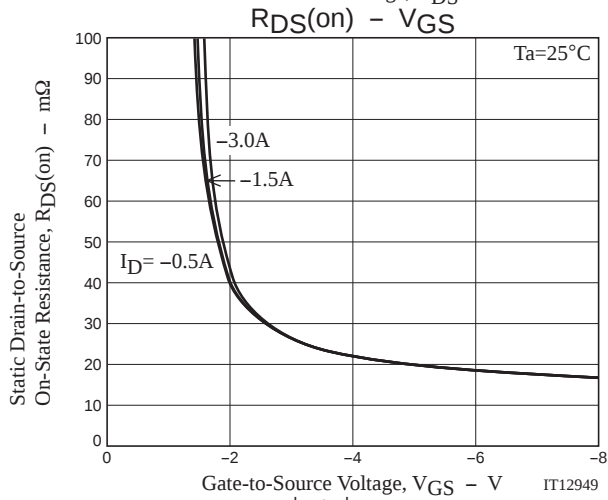
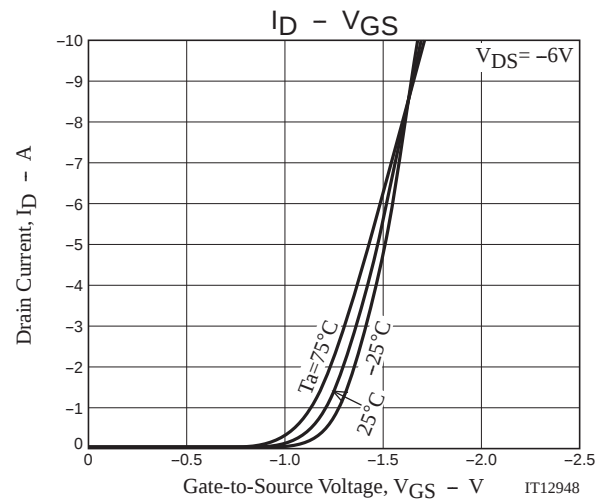
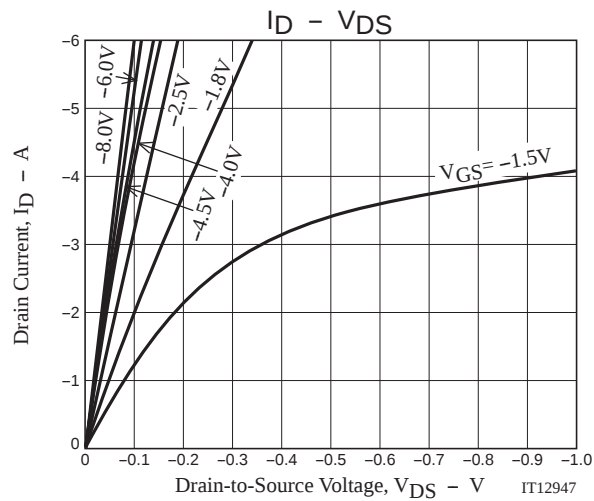


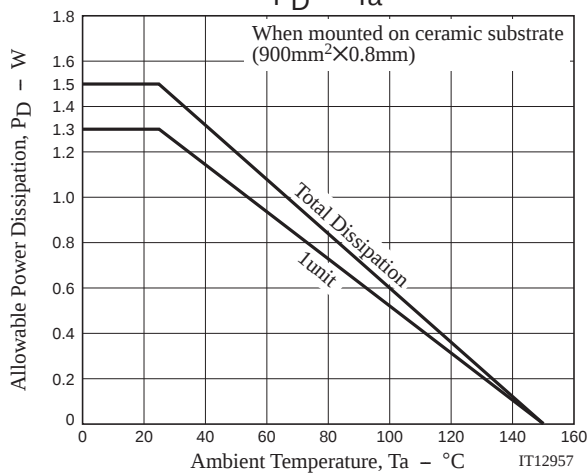
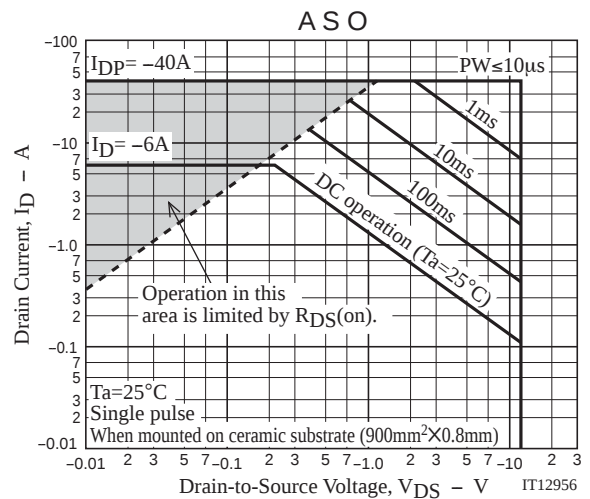
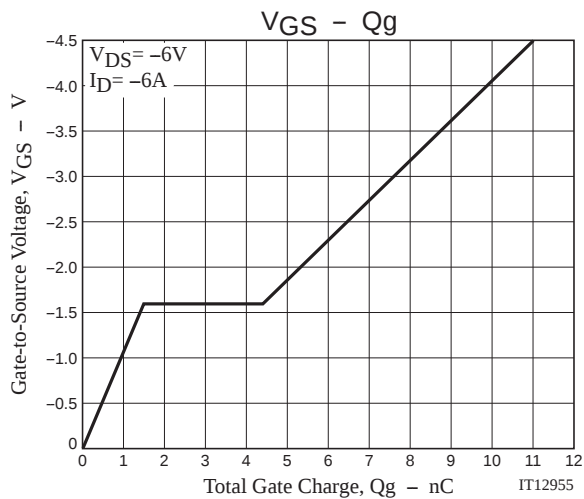
Electrical Connection



Switching Time Test Circuit







Note on usage : Since the ECH8652 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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