

**ECH8603**

Ultrahigh-Speed Switching Applications

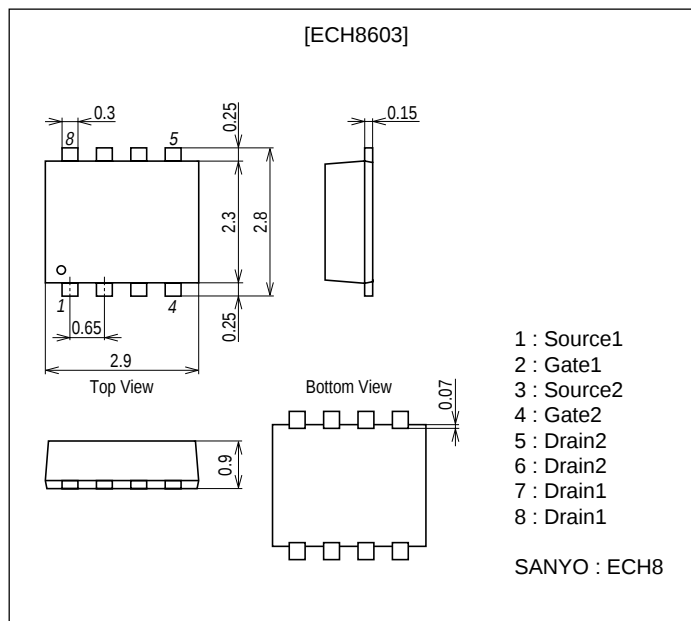
Features

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

Package Dimensions

unit : mm

2206A



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		-20	V
Gate-to-Source Voltage	V_{GS}		± 10	V
Drain Current (DC)	I_D		-4	A
Drain Current (Pulse)	I_{DP}	PW $\leq 10\mu s$, duty cycle $\leq 1\%$	-40	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm 2 X0.8mm)1unit	1.3	W
Total Dissipation	P_T	Mounted on a ceramic board (900mm 2 X0.8mm)	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	$V_{(BR)DS}$	$I_D = -1mA$, $V_{GS} = 0$	-20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20V$, $V_{GS} = 0$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8V$, $V_{DS} = 0$			± 10	μA

Marking : JC

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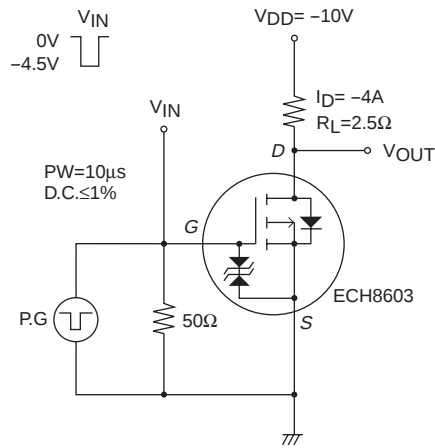
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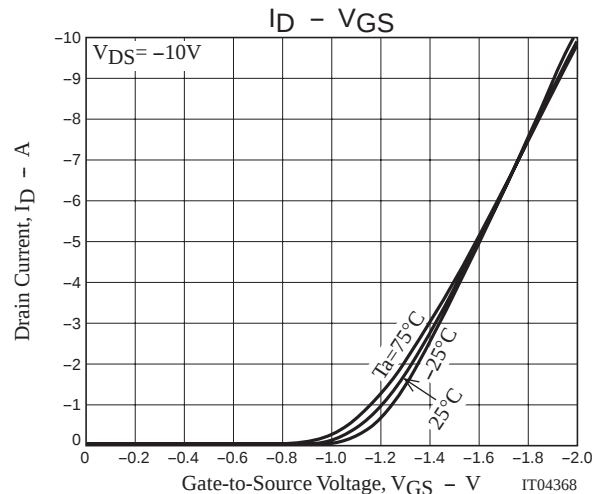
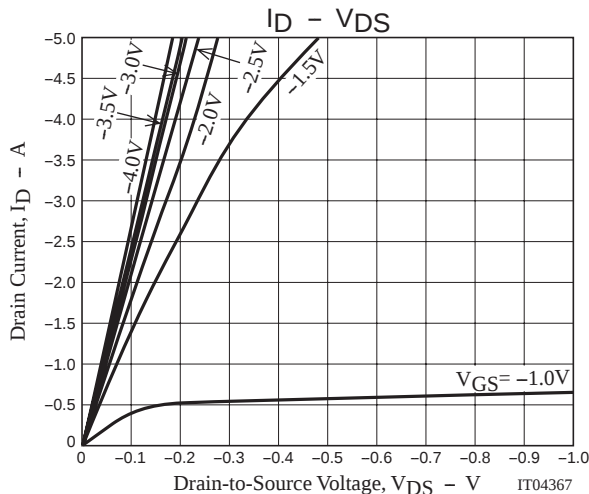
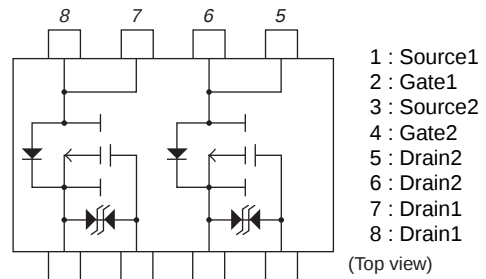
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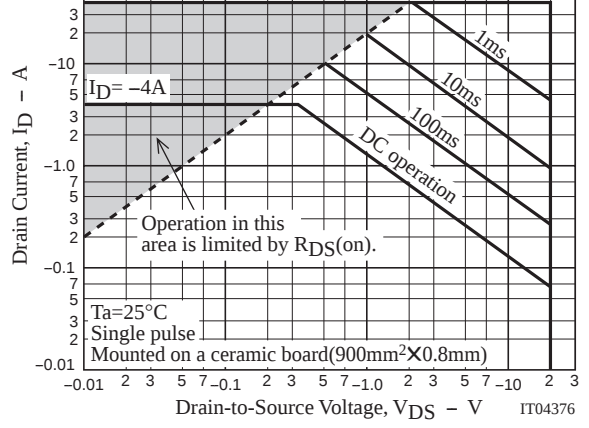
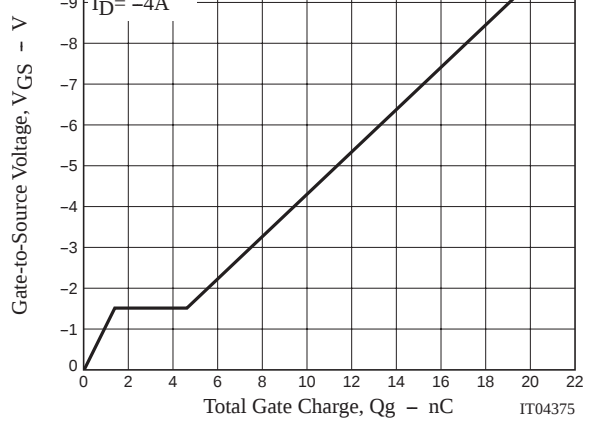
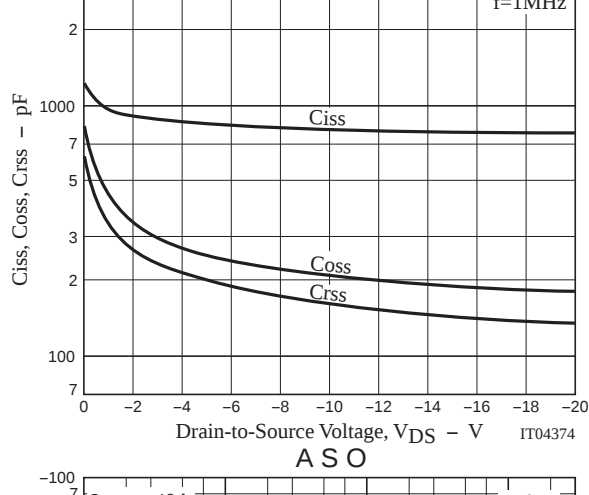
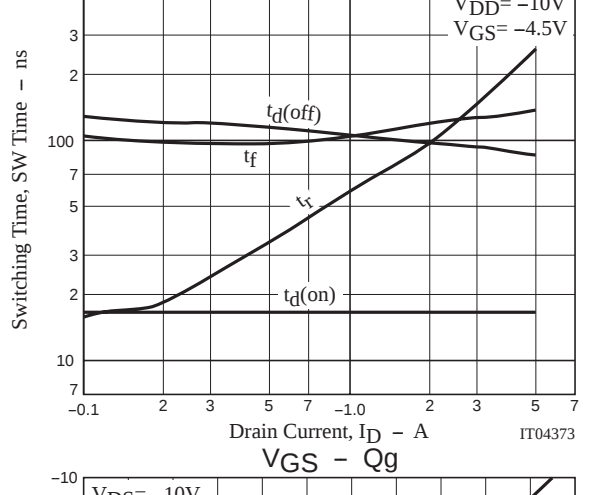
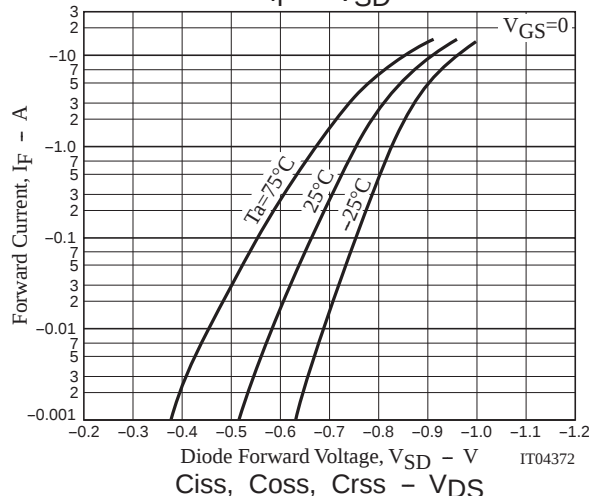
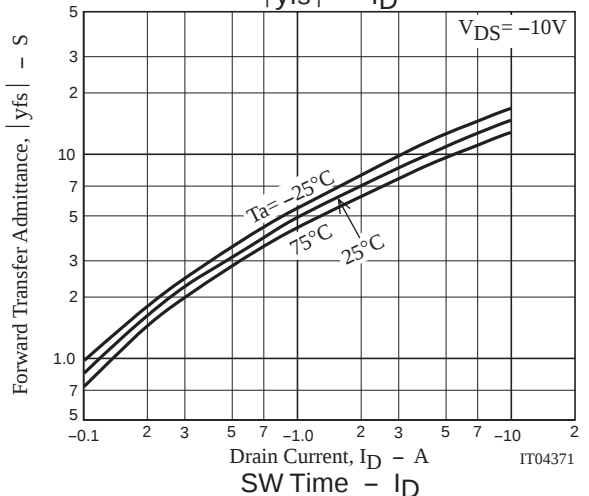
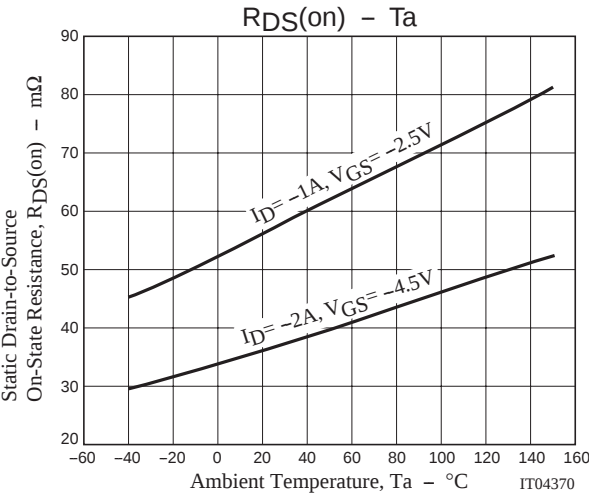
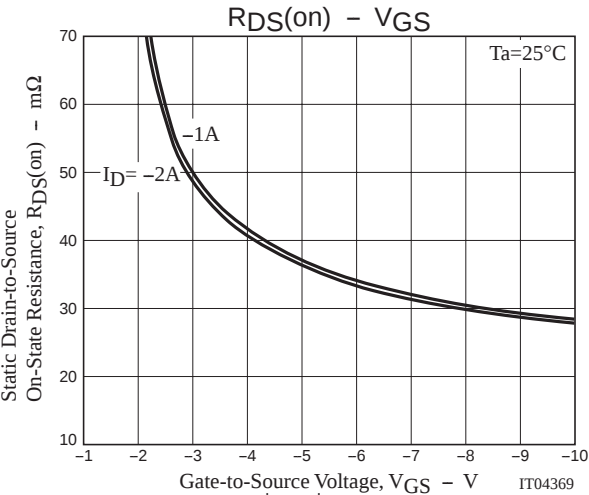
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-2A$	4.9	7		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-2A, V_{GS}=-4.5V$		37	54	$m\Omega$
	$R_{DS(on)2}$	$I_D=-1A, V_{GS}=-2.5V$		58	87	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-10V, f=1MHz$		800		pF
Output Capacitance	C_{oss}	$V_{DS}=-10V, f=1MHz$		210		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-10V, f=1MHz$		160		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		17		ns
Rise Time	t_r	See specified Test Circuit.		197		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		88		ns
Fall Time	t_f	See specified Test Circuit.		128		ns
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-10V, I_D=-4A$		21		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-4A$		1.4		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-4A$		3.2		nC
Diode Forward Voltage	V_{SD}	$I_S=-4A, V_{GS}=0$		-0.82	-1.2	V

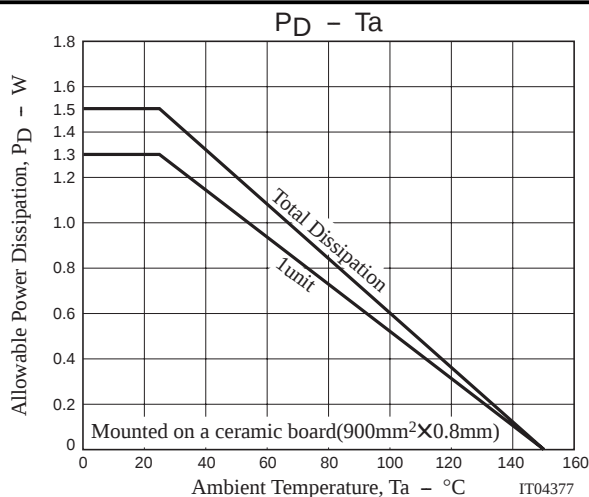
Switching Time Test Circuit



Electrical Connection







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