



ON Semiconductor®

**ON Semiconductor**  
**DATA SHEET****ECH8607** — N-Channel Silicon MOSFET  
**General-Purpose Switching Device**  
**Applications****Features**

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

**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>		±10	V
Drain Current (DC)	I <sub>D</sub>		5	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	40	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm²×0.8mm) 1unit	1.3	W
Total Dissipation	P <sub>T</sub>	Mounted on a ceramic board (900mm²×0.8mm)	1.5	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> =±8V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	0.5		1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =2.5A	5.9	8.5		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =3A, V <sub>GS</sub> =4V		27	36	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =1.5A, V <sub>GS</sub> =2.5V		35	51	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, f=1MHz		730		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =10V, f=1MHz		210		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =10V, f=1MHz		100		pF

Marking : KG

Continued on next page.

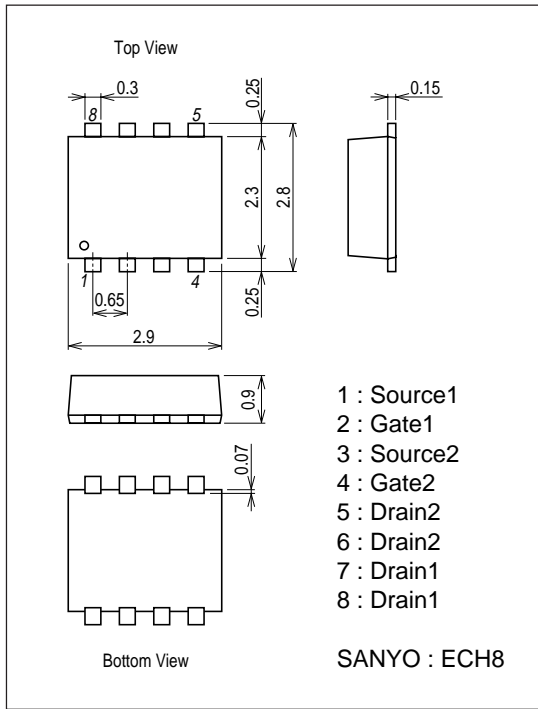
# ECH8607

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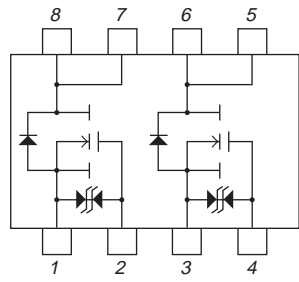
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		20		ns
Rise Time	$t_r$	See specified Test Circuit.		110		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		80		ns
Fall Time	$t_f$	See specified Test Circuit.		64		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=10V, I_D=5A$		21		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10V, V_{GS}=10V, I_D=5A$		1.8		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10V, V_{GS}=10V, I_D=5A$		2.5		nC
Diode Forward Voltage	$V_{SD}$	$I_S=5A, V_{GS}=0V$		0.84	1.2	V

## Package Dimensions

unit : mm  
7011-001



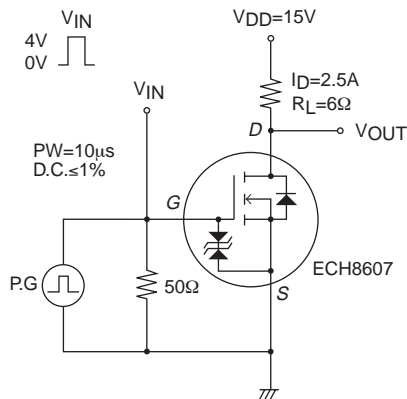
## Electrical Connection

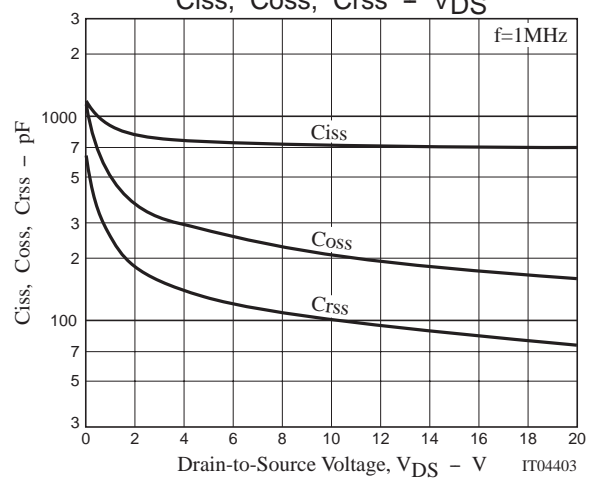
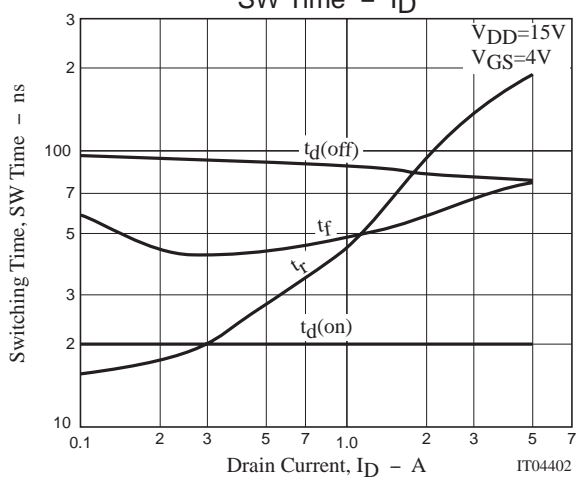
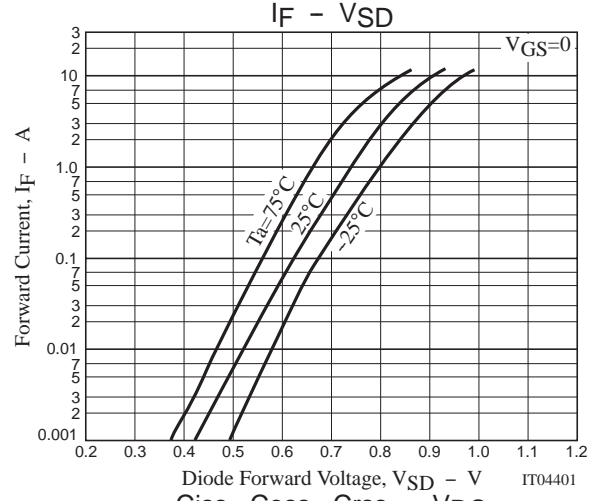
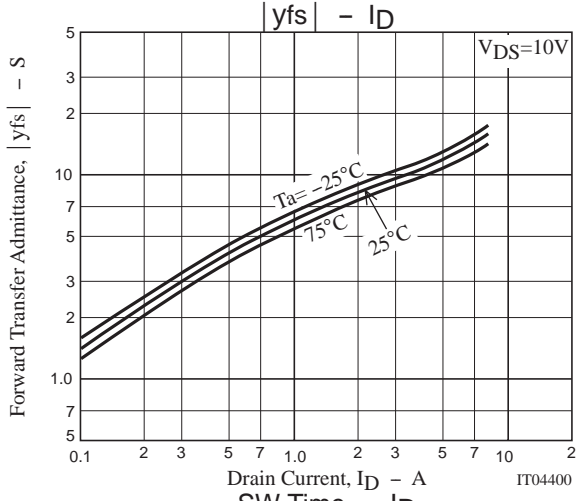
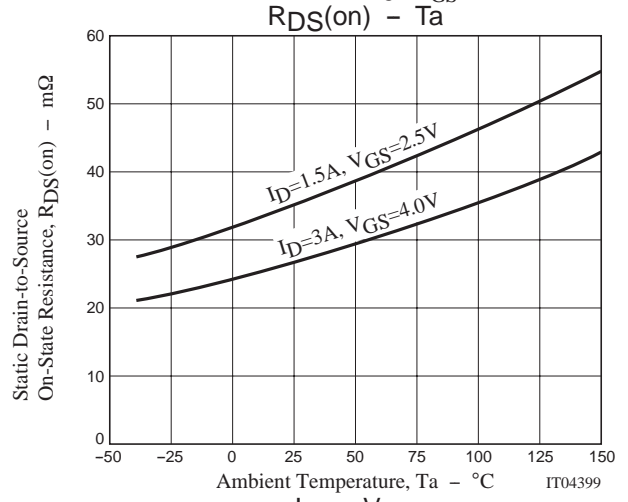
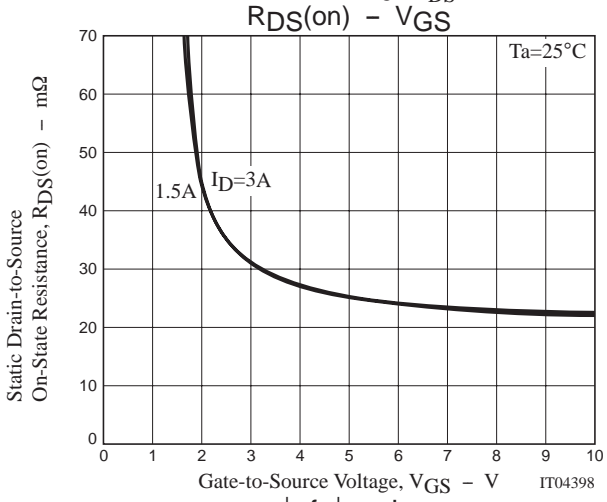
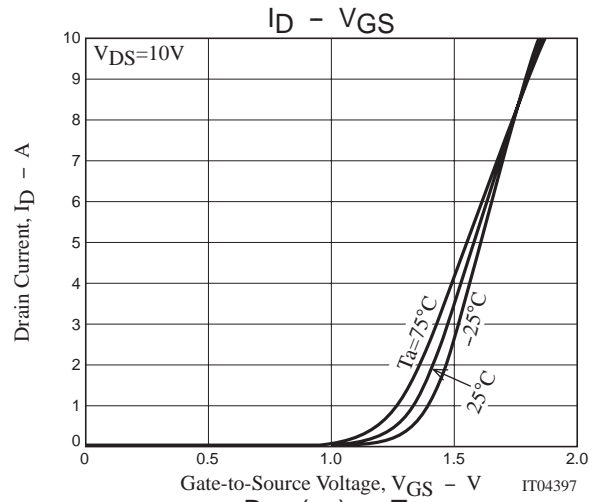
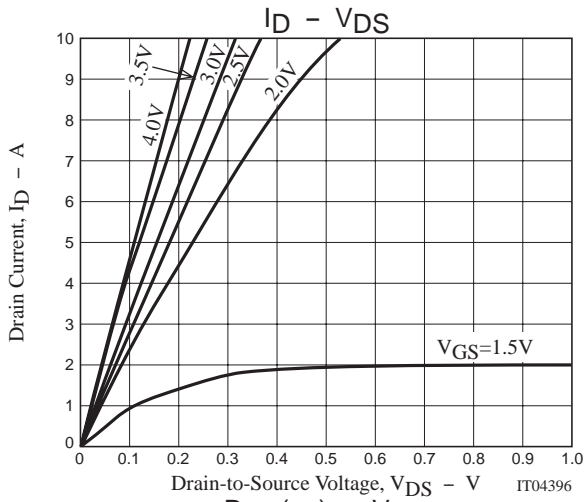


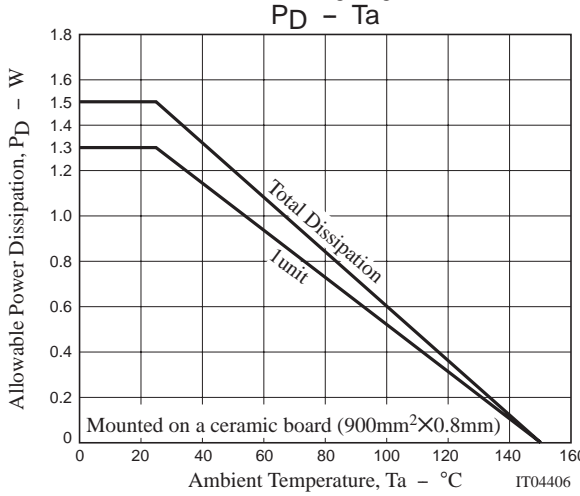
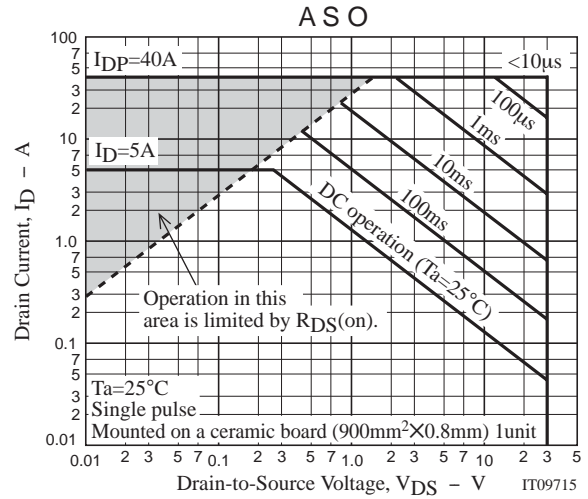
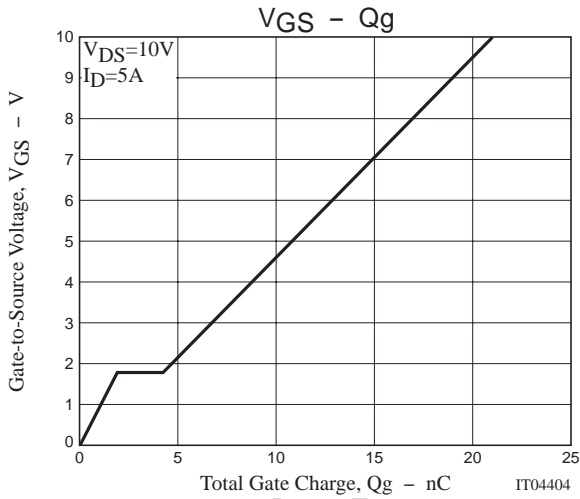
- 1 : Source1
- 2 : Gate1
- 3 : Source2
- 4 : Gate2
- 5 : Drain2
- 6 : Drain2
- 7 : Drain1
- 8 : Drain1

Top view

## Switching Time Test Circuit







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