



ON Semiconductor®

# ON Semiconductor DATA SHEET

## FW705 — P-Channel Silicon MOSFET General-Purpose Switching Device Applications

### Features

- Composite type with a P-channel MOSFET driving from a 2.5V supply voltage contained in a single package.
- High-density mounting.

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		-6	A
Drain Current (PW≤10μs)	I <sub>DP</sub>	Duty cycle≤1%	-52	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (1500mm²×0.8mm) 1unit, PW≤10s	2.3	W
Total Dissipation	P <sub>T</sub>	When mounted on ceramic substrate (1500mm²×0.8mm), PW≤10s	2.5	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	-20			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-20V, 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	-0.4		-1.4	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-6A	7.8	13		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-6A, V <sub>GS</sub> =-4V		30	40	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-3A, V <sub>GS</sub> =-2.5V		42	59	mΩ

Marking : W705

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# FW705

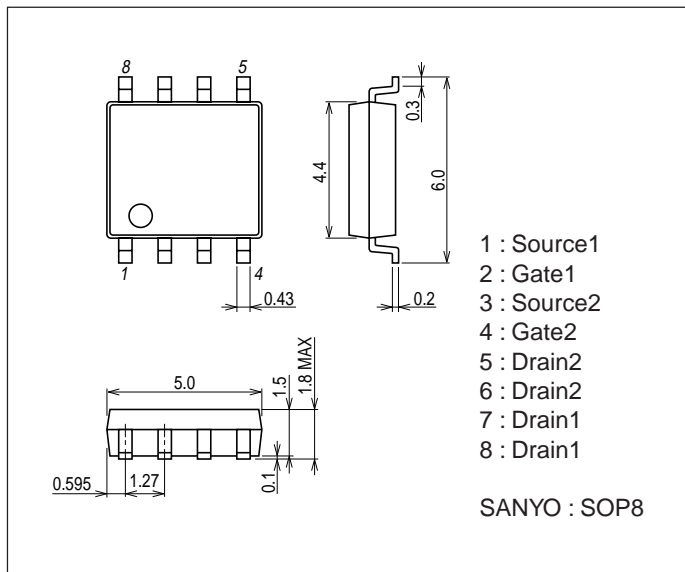
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =-10V, f=1MHz		1720		pF
Output Capacitance	Coss	V <sub>DS</sub> =-10V, f=1MHz		260		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =-10V, f=1MHz		245		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		19		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		390		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.		110		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		145		ns
Total Gate Charge	Qg	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-4V, I <sub>D</sub> =-6A		18.4		nC
Gate-to-Source Charge	Qgs	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-4V, I <sub>D</sub> =-6A		3.2		nC
Gate-to-Drain "Miller" Charge	Qgd	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-4V, I <sub>D</sub> =-6A		5.2		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-6A, V <sub>GS</sub> =0V		-0.82	-1.2	V

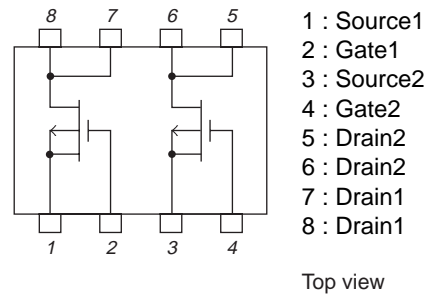
## Package Dimensions

unit : mm (typ)

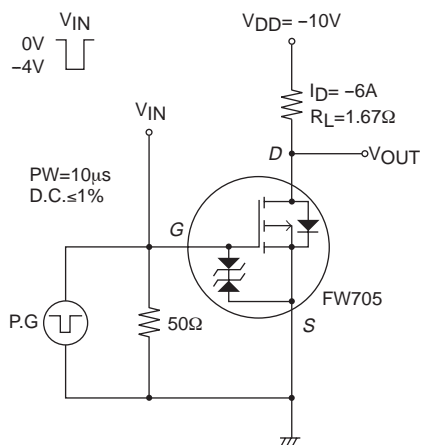
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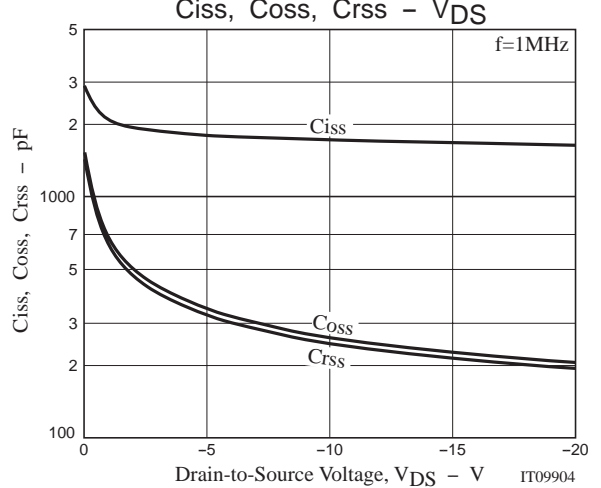
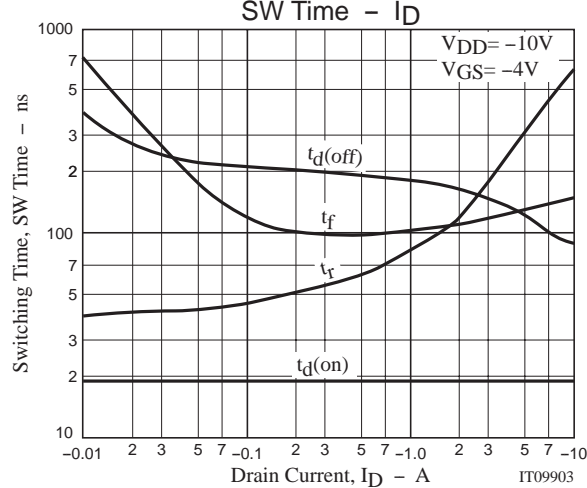
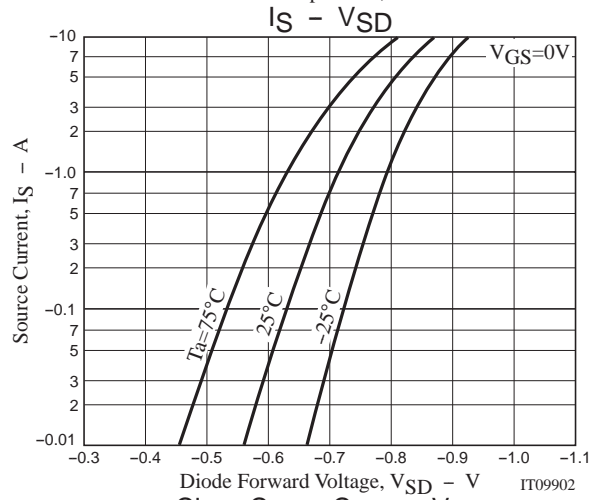
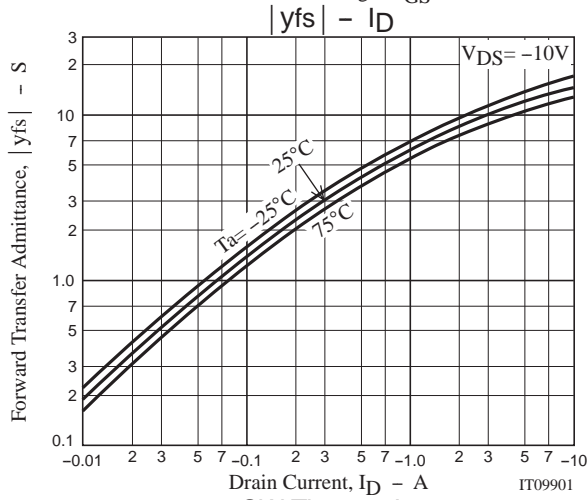
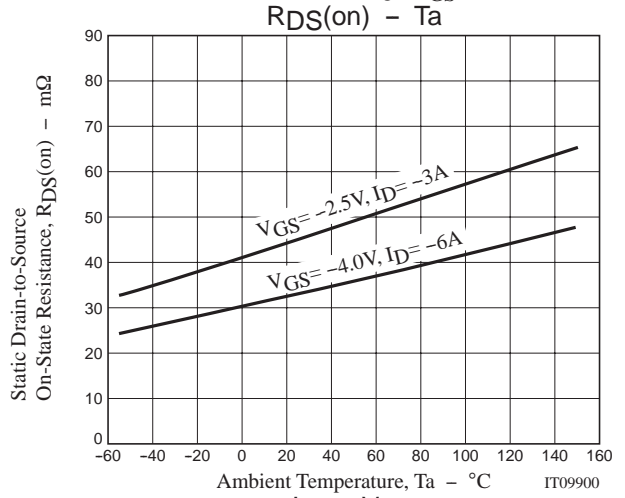
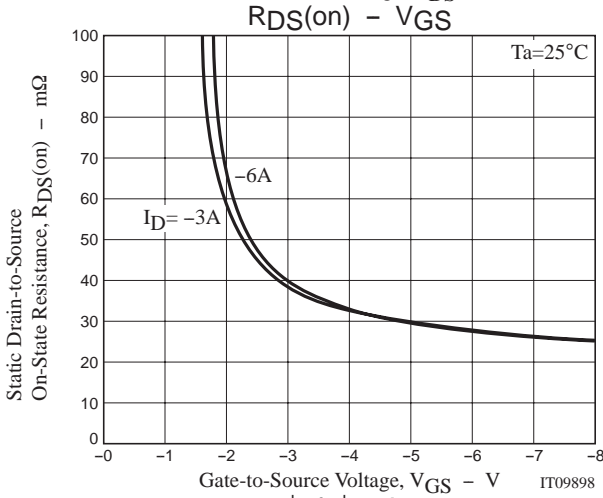
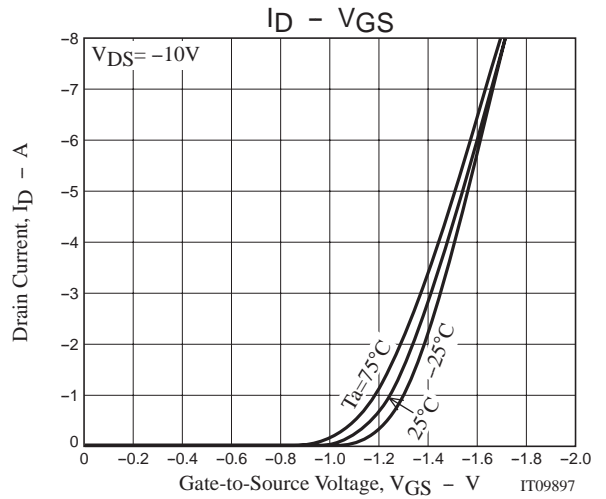
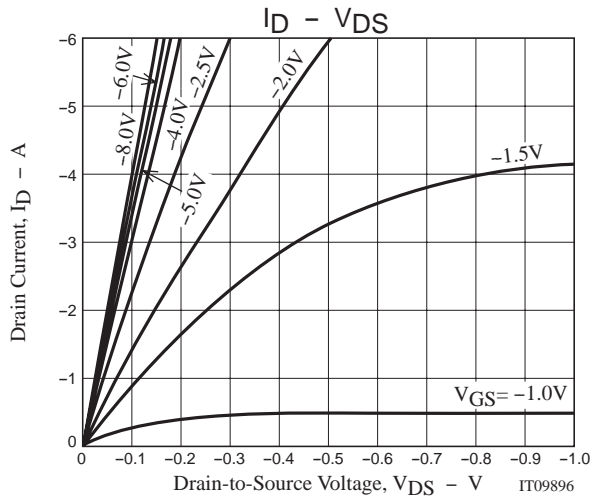


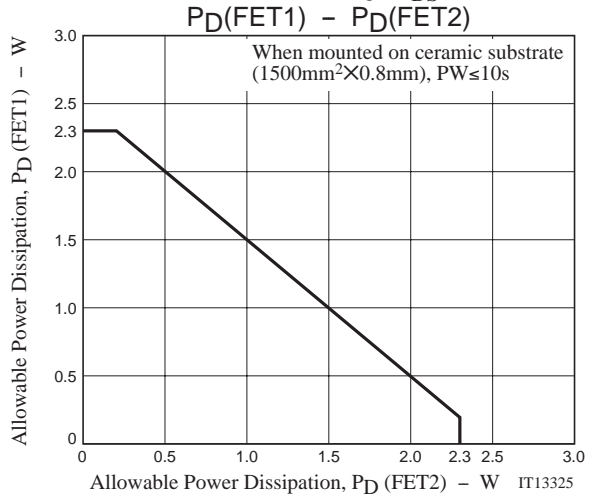
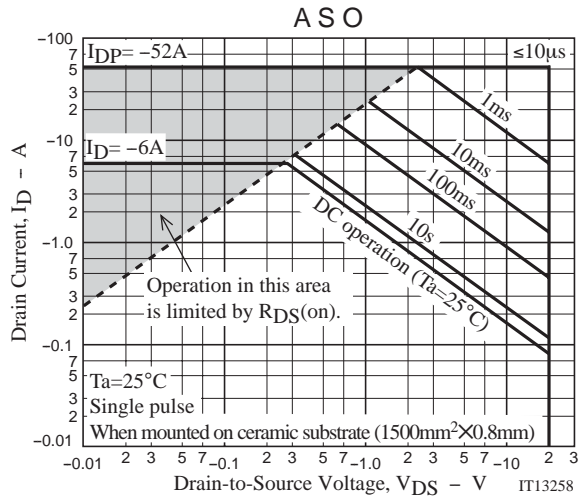
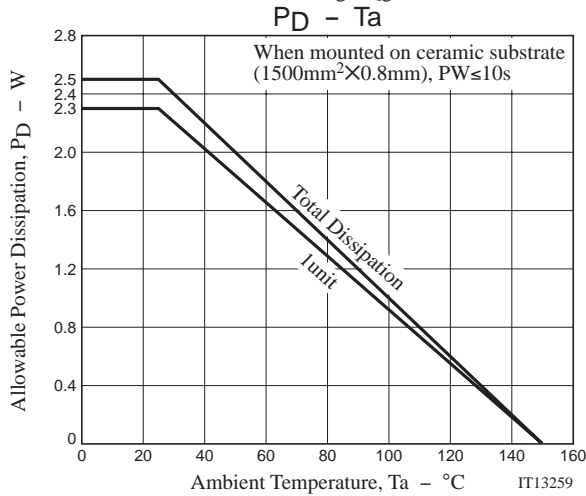
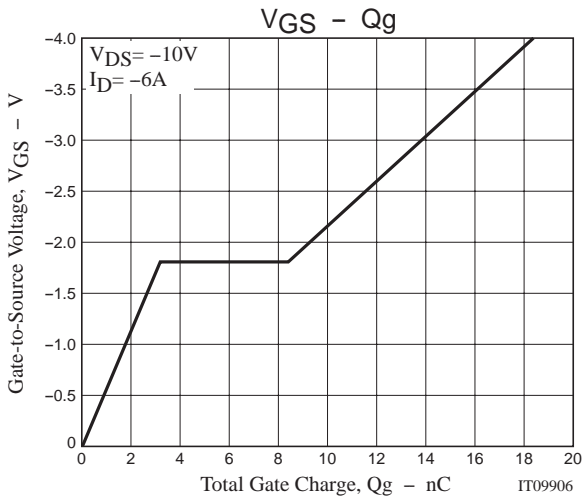
## Electrical Connection



## Switching Time Test Circuit







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