



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

N-Channel and P-Channel Silicon MOSFETs

## FW907 — General-Purpose Switching Device Applications

### Features

- ON-resistance Nch:  $R_{DS(on)1}=13m\Omega$ (typ.), Pch:  $R_{DS(on)1}=20m\Omega$ (typ.)
- 4V drive
- N-channel MOSFET + P-channel MOSFET

### Specifications

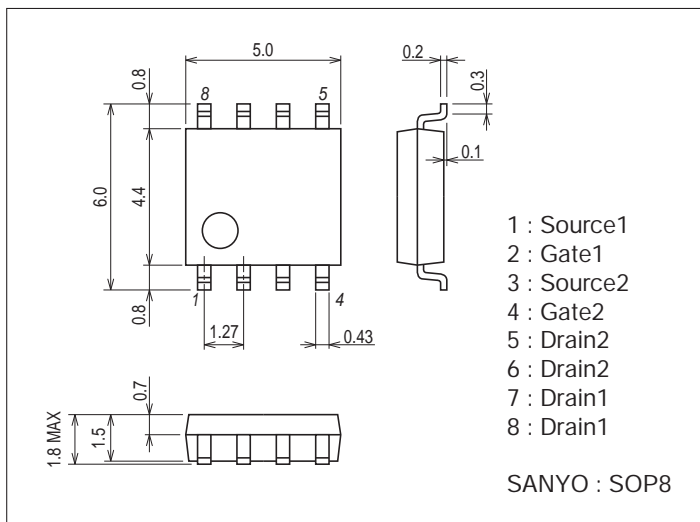
Absolute Maximum Ratings at  $T_a=25^\circ C$

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	$V_{DSS}$		30	-30	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	$\pm 20$	V
Drain Current (DC)	$I_D$		10	-8	A
Drain Current ( $PW \leq 10s$ )	$I_D$	Duty cycle $\leq 1\%$	11.5	-9	A
Drain Current ( $PW \leq 100ms$ )	$I_D$	Duty cycle $\leq 1\%$	24	-19	A
Drain Current ( $PW \leq 10\mu s$ )	$I_{DP}$	Duty cycle $\leq 1\%$	52	-52	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (2000mm <sup>2</sup> ×0.8mm) 1unit, $PW \leq 10s$	2.3		W
Total Dissipation	$P_T$	When mounted on ceramic substrate (2000mm <sup>2</sup> ×0.8mm), $PW \leq 10s$	2.5		W
Channel Temperature	$T_{ch}$		150		$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150		$^\circ C$

### Package Dimensions

unit : mm (typ)

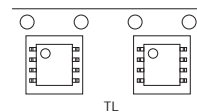
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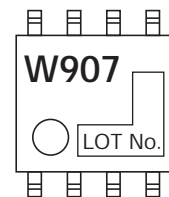
### Product & Package Information

- Package : SOP8
- JEITA, JEDEC : SC-87, SOT96
- Minimum Packing Quantity : 1,000 pcs./reel

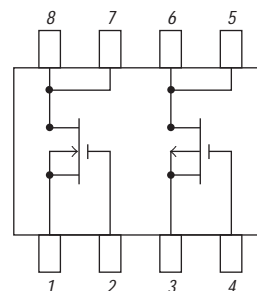
### Packing Type : TL



### Marking



### Electrical Connection



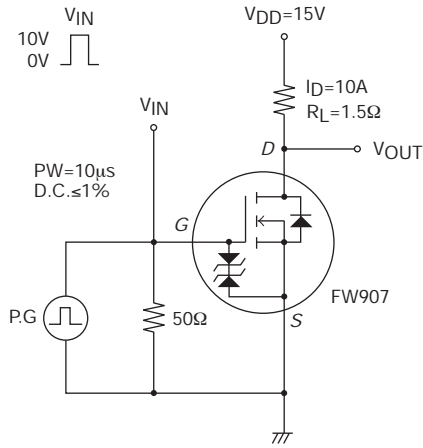
# FW907

## Electrical Characteristics at Ta=25°C

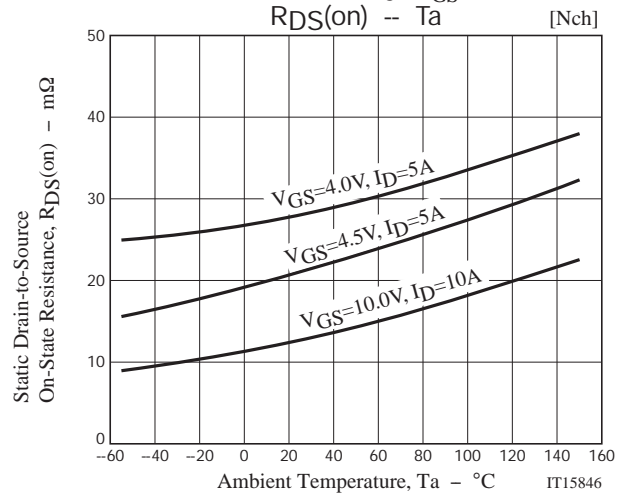
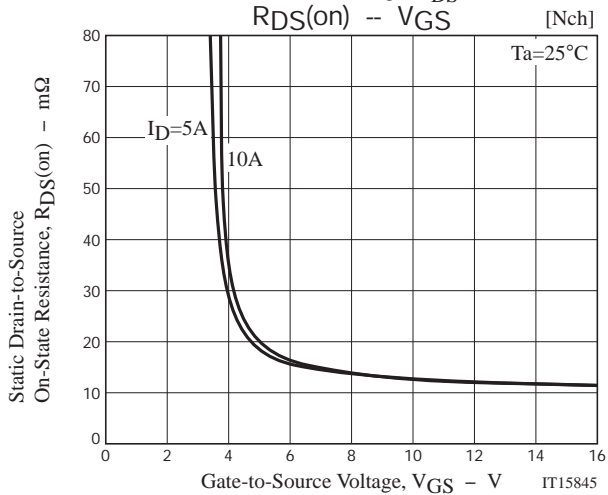
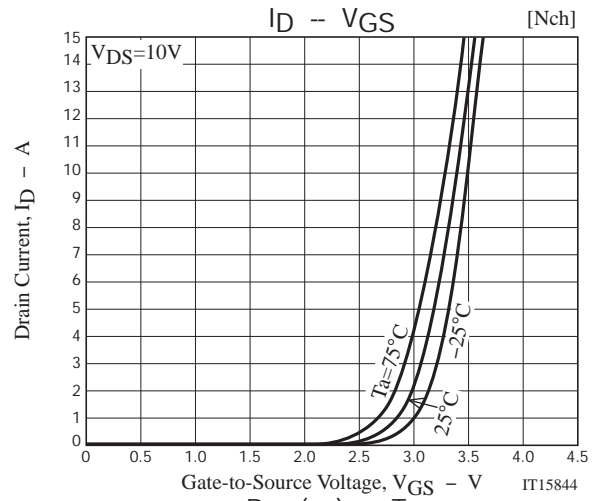
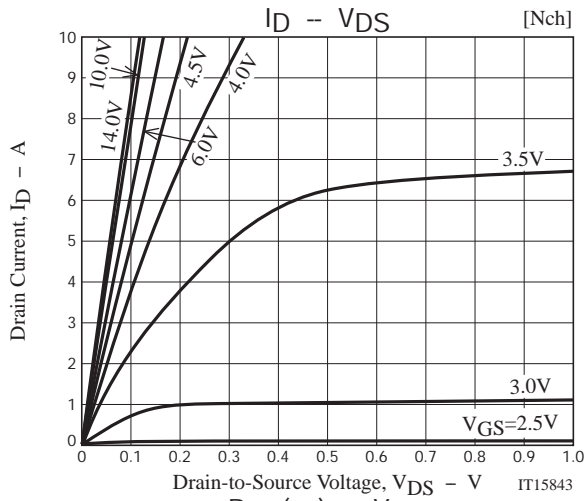
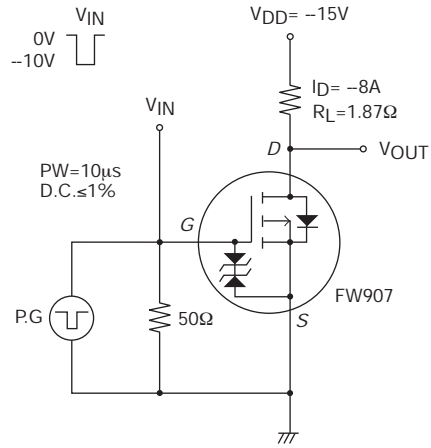
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	30			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	1.2		2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =10A		5.2		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =10A, V <sub>GS</sub> =10V		13	17	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =5A, V <sub>GS</sub> =4.5V		21	30	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =5A, V <sub>GS</sub> =4V		27	38	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, f=1MHz		1000		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =10V, f=1MHz		170		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =10V, f=1MHz		100		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		12		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		75		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.		57		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		44		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =10A		17		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =10A		3.6		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =10A		3.0		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =10A, V <sub>GS</sub> =0V		0.85	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	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> =±16V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA	-1.2		-2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-8A		10		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-8A, V <sub>GS</sub> =-10V		20	26	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-4A, V <sub>GS</sub> =-4.5V		32	45	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =-4A, V <sub>GS</sub> =-4V		36	51	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-10V, f=1MHz		875		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =-10V, f=1MHz		200		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =-10V, f=1MHz		150		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		8.1		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		73		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.		84		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		74		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-8A		18		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-8A		2.1		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-8A		4.7		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-8A, V <sub>GS</sub> =0V		-0.82	-1.2	V

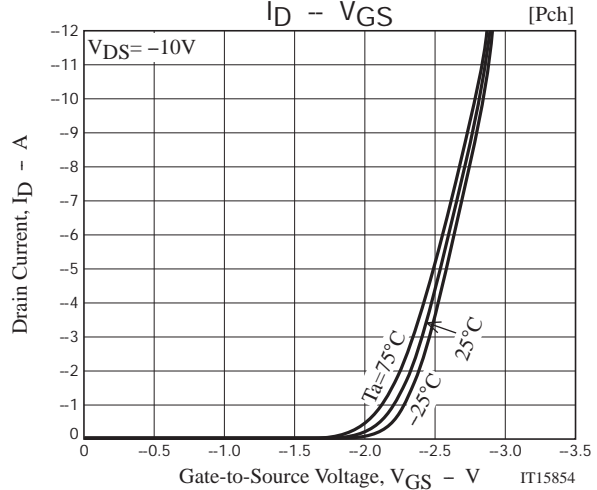
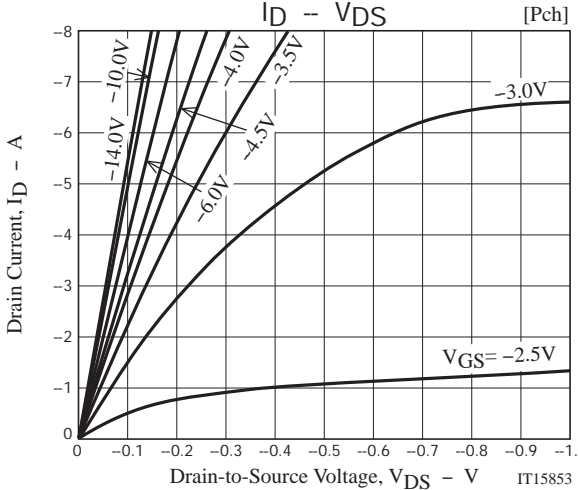
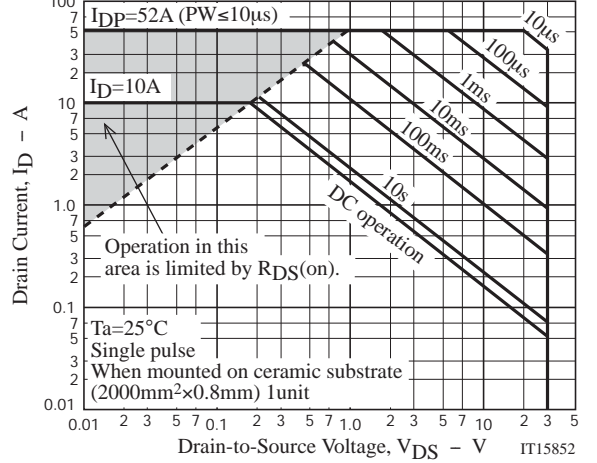
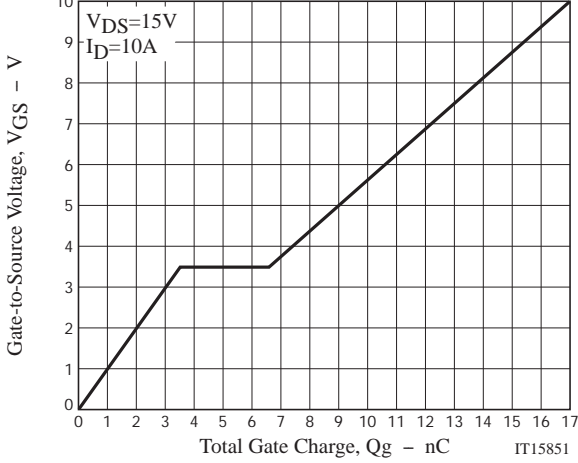
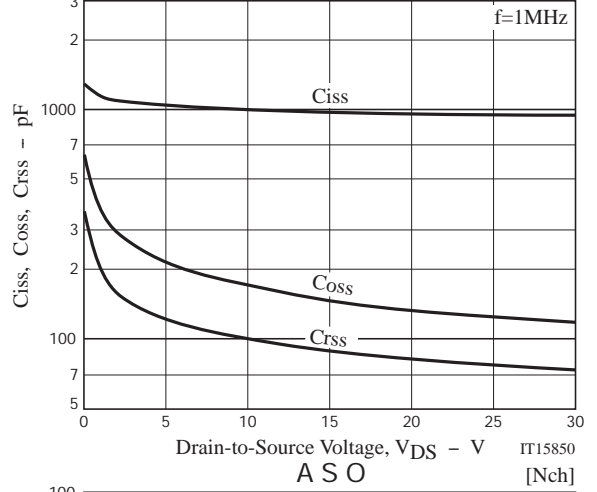
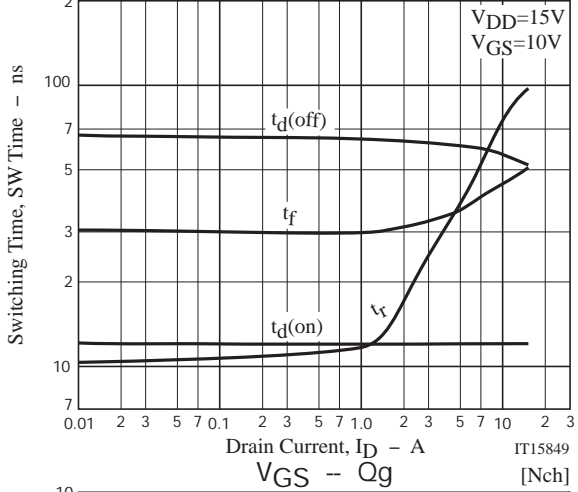
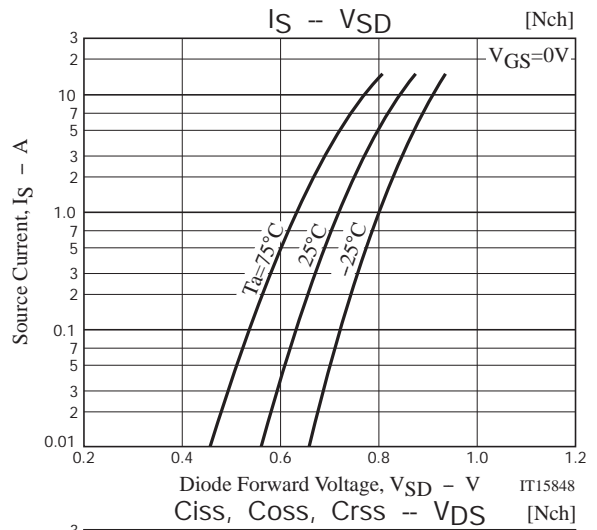
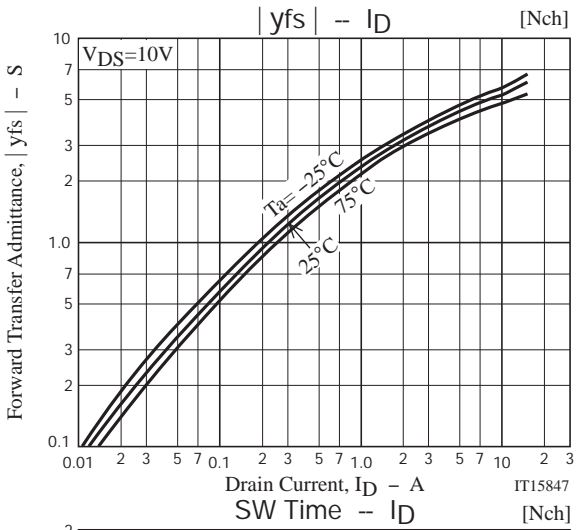
Switching Time Test Circuit

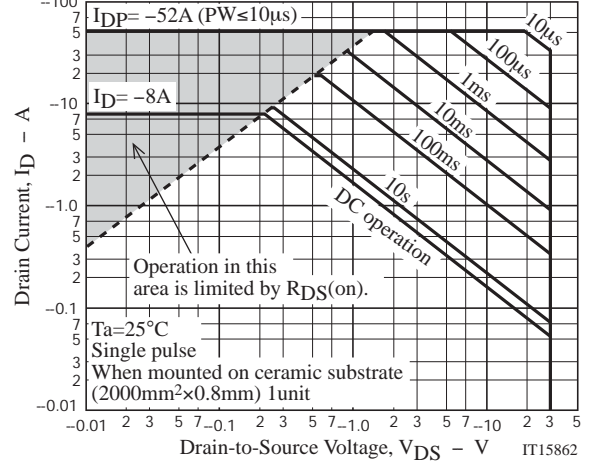
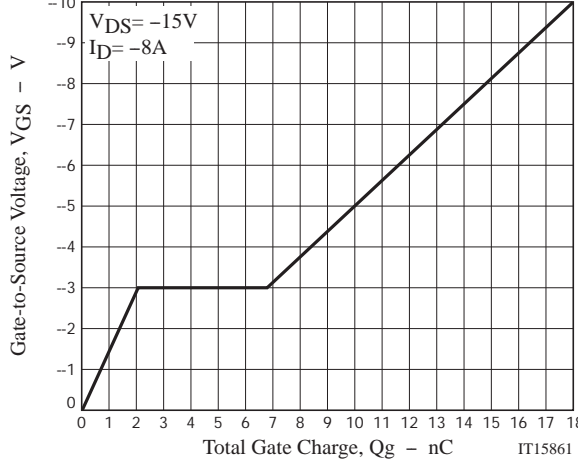
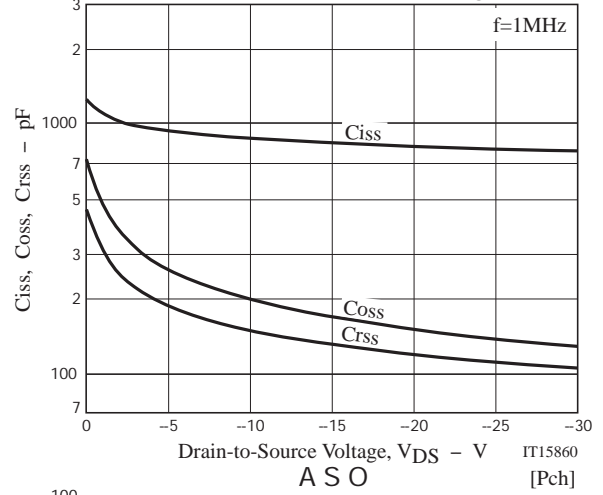
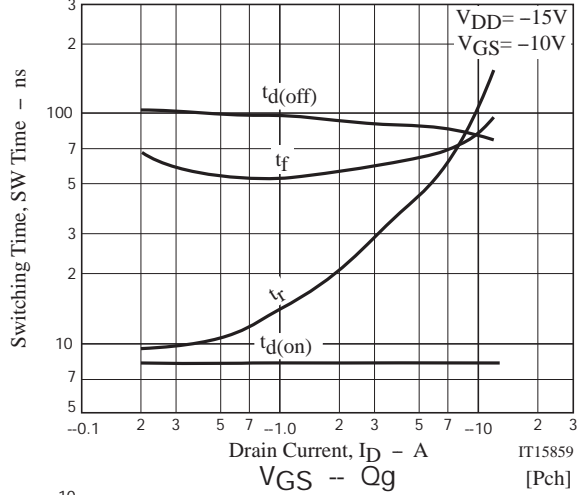
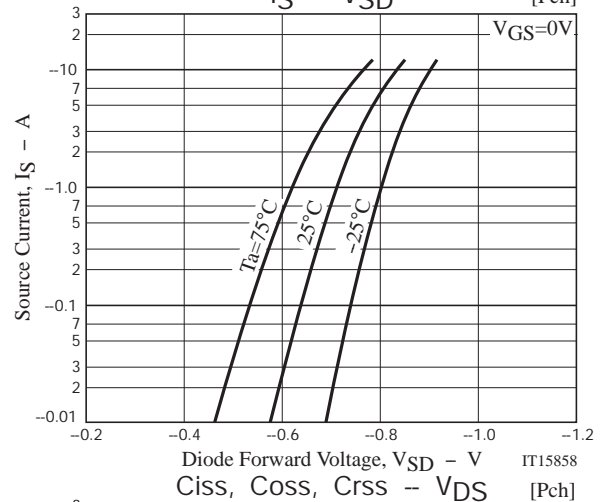
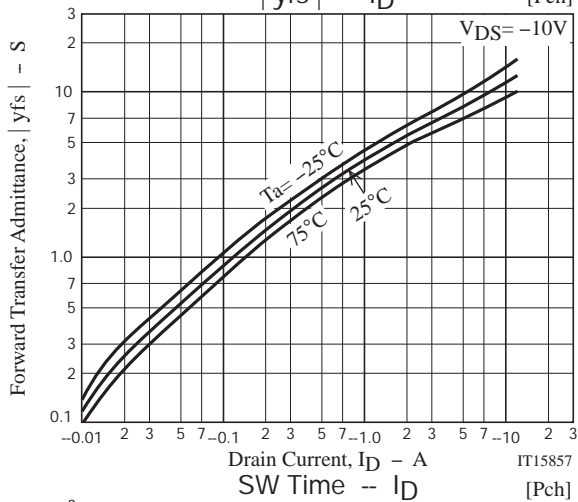
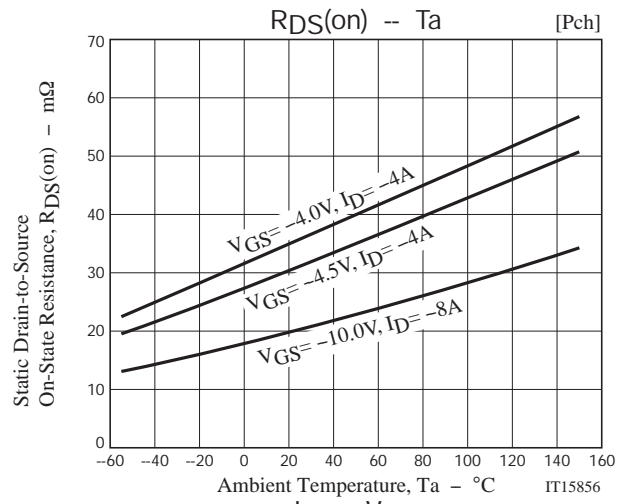
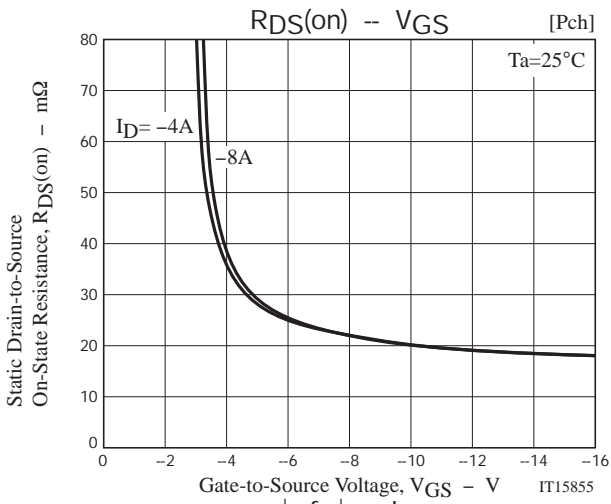
[N-channel]

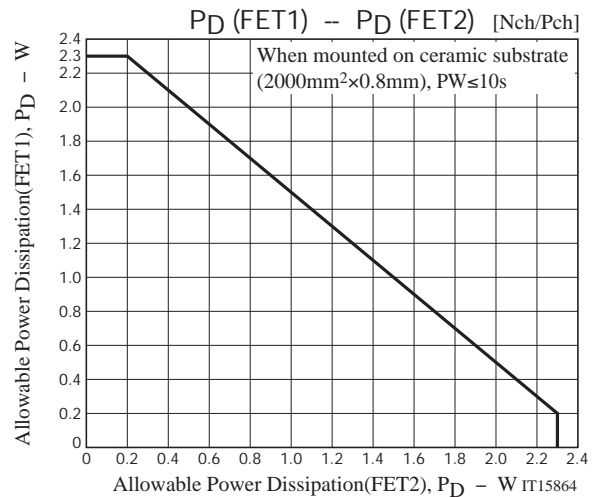
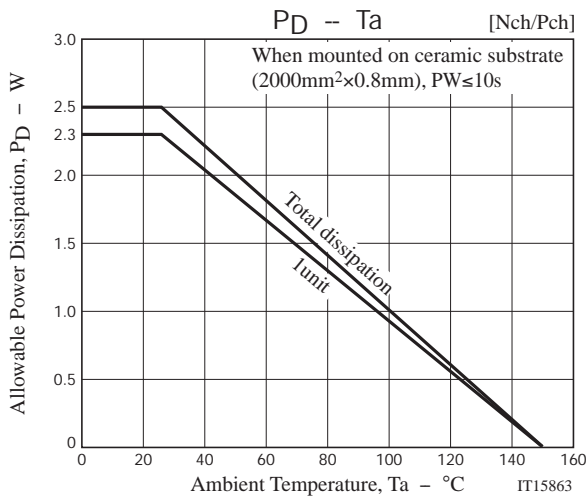


[P-channel]









Note on usage : Since the FW907 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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