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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

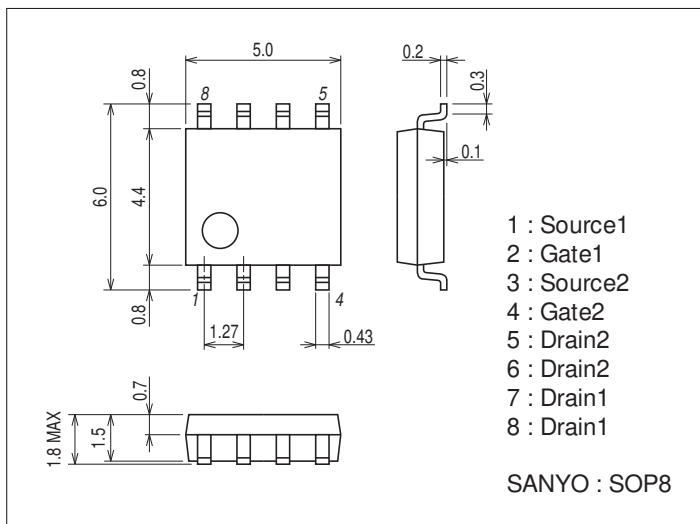
Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V_{DSS}		30	-30	V
Gate-to-Source Voltage	V_{GSS}		± 20	± 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 ² ×0.8mm) 1unit, $PW \leq 10s$	2.3		W
Total Dissipation	P_T	When mounted on ceramic substrate (2000mm ² ×0.8mm), $PW \leq 10s$	2.5		W
Channel Temperature	T_{ch}		150		°C
Storage Temperature	T_{stg}		-55 to +150		°C

Package Dimensions

unit : mm (typ)

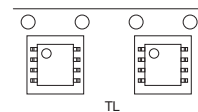
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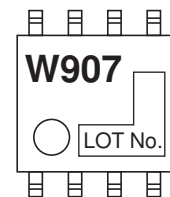
Product & Package Information

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

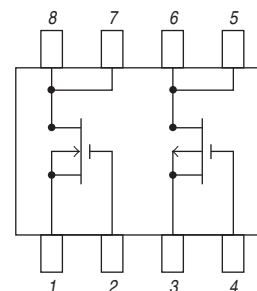
Packing Type : TL



Marking



Electrical Connection



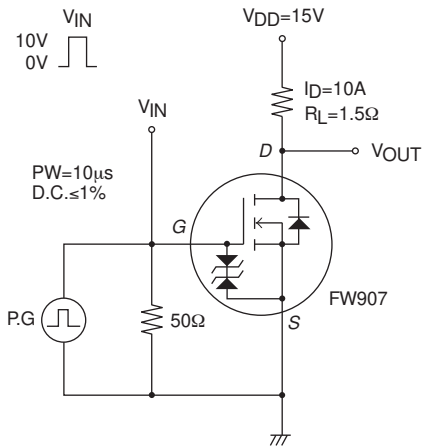
FW907

Electrical Characteristics at Ta=25°C

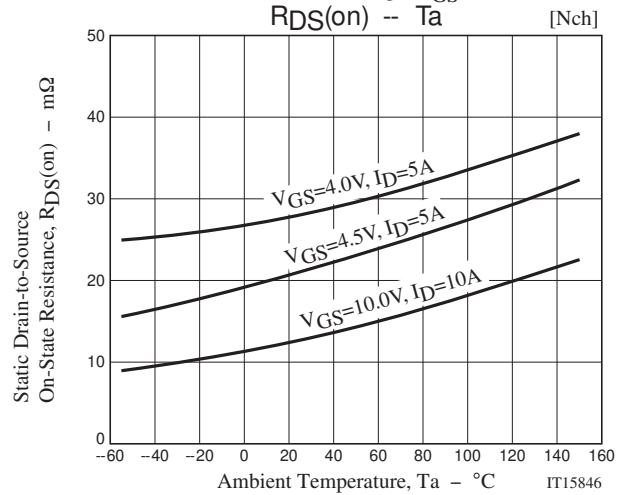
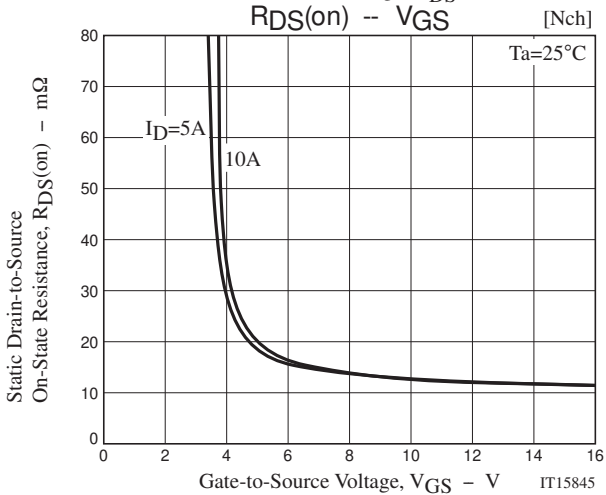
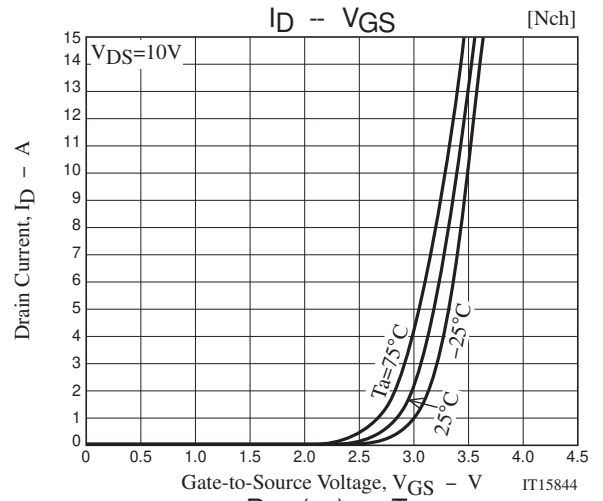
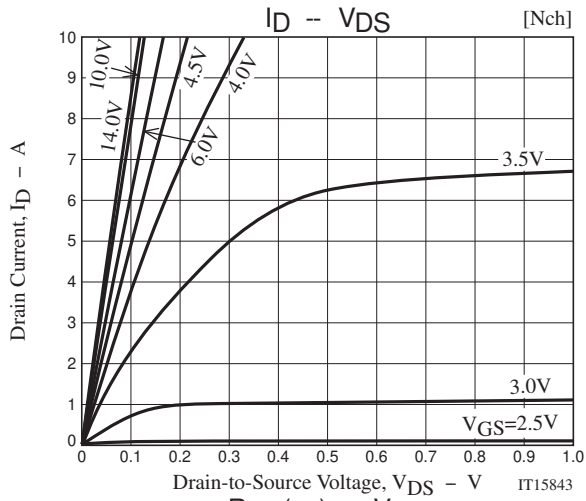
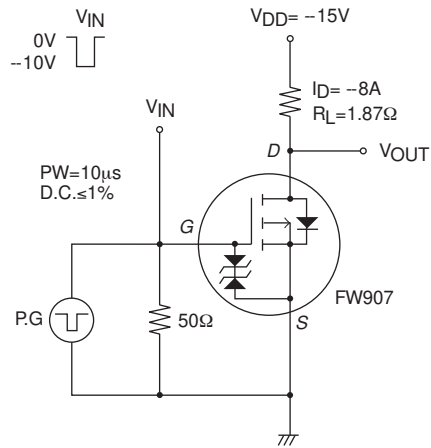
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=10A$		5.2		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=10A, V_{GS}=10V$		13	17	$m\Omega$
	$R_{DS(on)2}$	$I_D=5A, V_{GS}=4.5V$		21	30	$m\Omega$
	$R_{DS(on)3}$	$I_D=5A, V_{GS}=4V$		27	38	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		1000		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		170		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		100		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		12		ns
Rise Time	t_r	See specified Test Circuit.		75		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		57		ns
Fall Time	t_f	See specified Test Circuit.		44		ns
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=10V, I_D=10A$		17		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=15V, V_{GS}=10V, I_D=10A$		3.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=15V, V_{GS}=10V, I_D=10A$		3.0		nC
Diode Forward Voltage	V_{SD}	$I_S=10A, V_{GS}=0V$		0.85	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0V$	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-8A$		10		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-8A, V_{GS}=-10V$		20	26	$m\Omega$
	$R_{DS(on)2}$	$I_D=-4A, V_{GS}=-4.5V$		32	45	$m\Omega$
	$R_{DS(on)3}$	$I_D=-4A, V_{GS}=-4V$		36	51	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-10V, f=1MHz$		875		pF
Output Capacitance	C_{oss}	$V_{DS}=-10V, f=1MHz$		200		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-10V, f=1MHz$		150		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		8.1		ns
Rise Time	t_r	See specified Test Circuit.		73		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		84		ns
Fall Time	t_f	See specified Test Circuit.		74		ns
Total Gate Charge	Q_g	$V_{DS}=-15V, V_{GS}=-10V, I_D=-8A$		18		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-15V, V_{GS}=-10V, I_D=-8A$		2.1		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-15V, V_{GS}=-10V, I_D=-8A$		4.7		nC
Diode Forward Voltage	V_{SD}	$I_S=-8A, V_{GS}=0V$		-0.82	-1.2	V

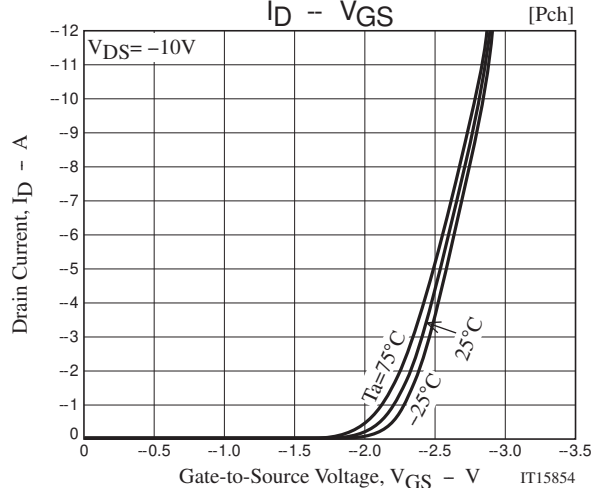
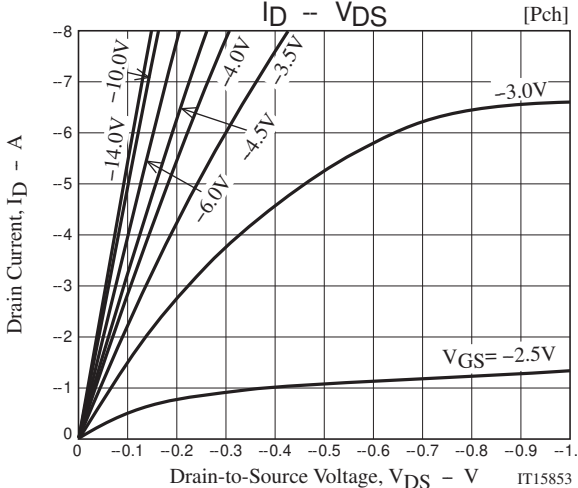
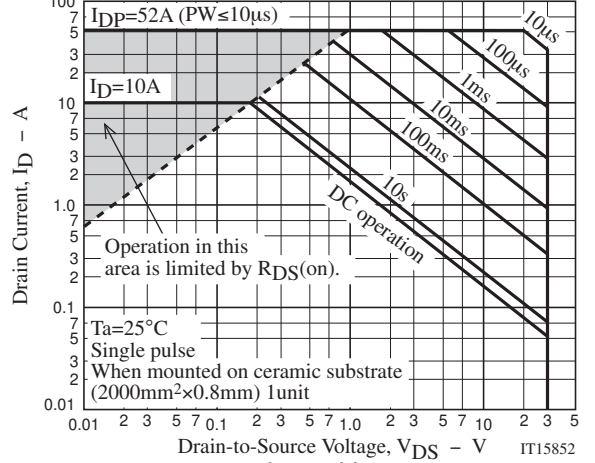
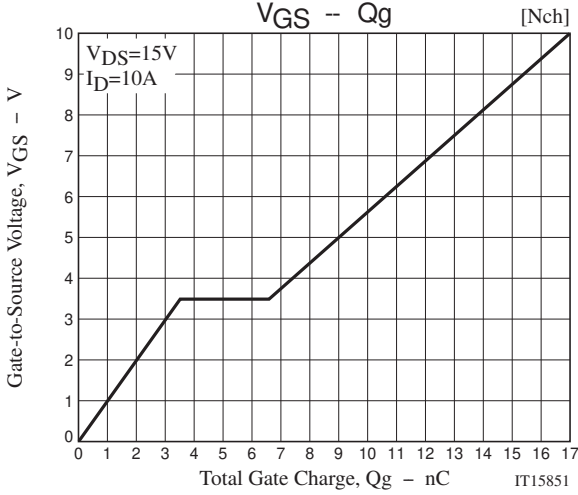
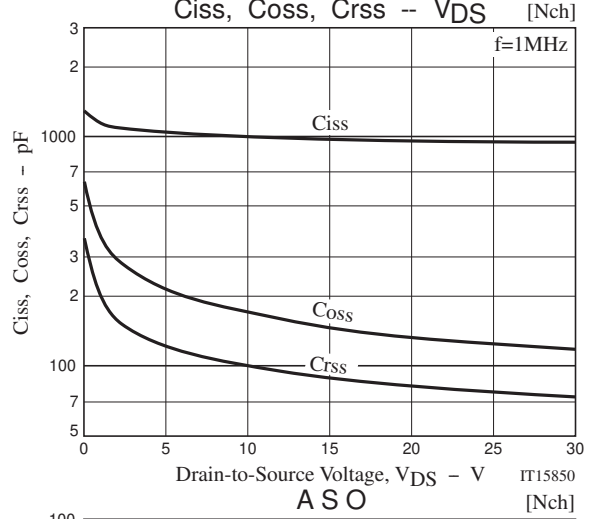
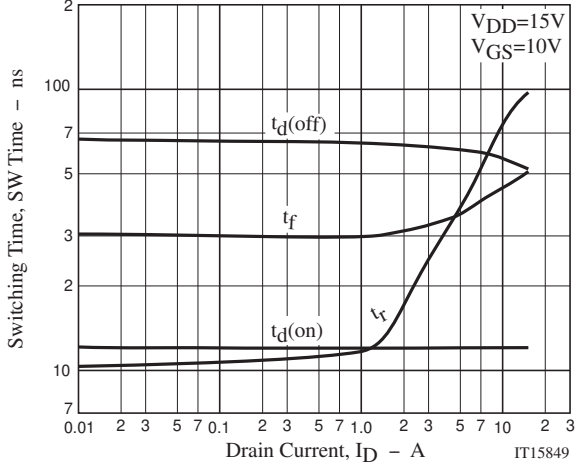
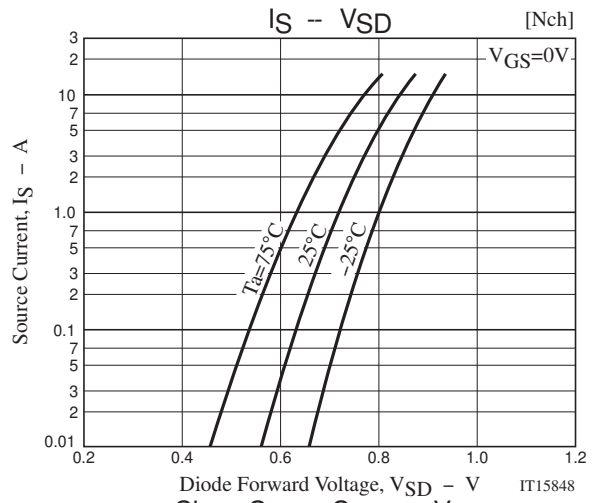
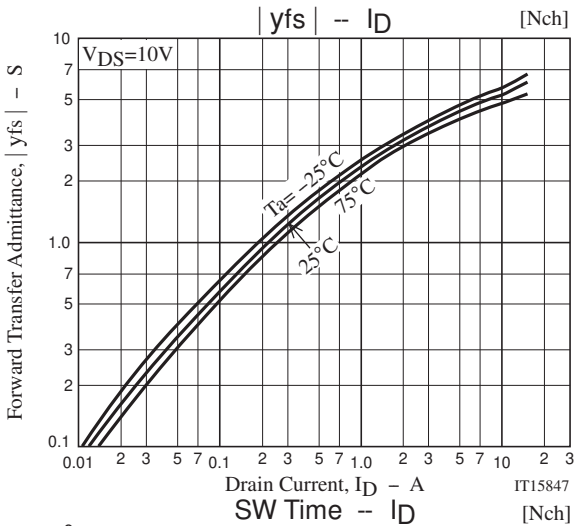
Switching Time Test Circuit

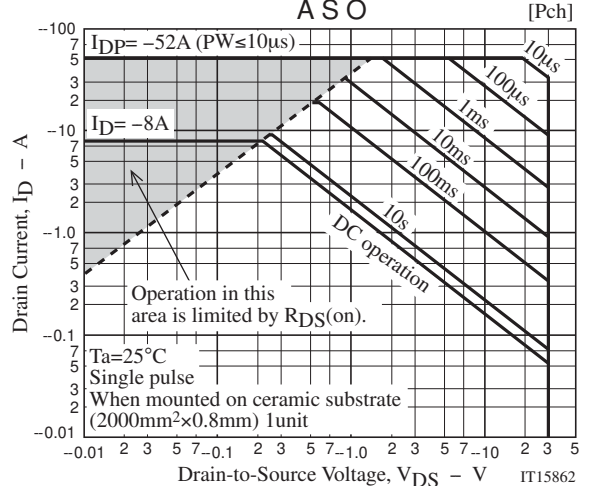
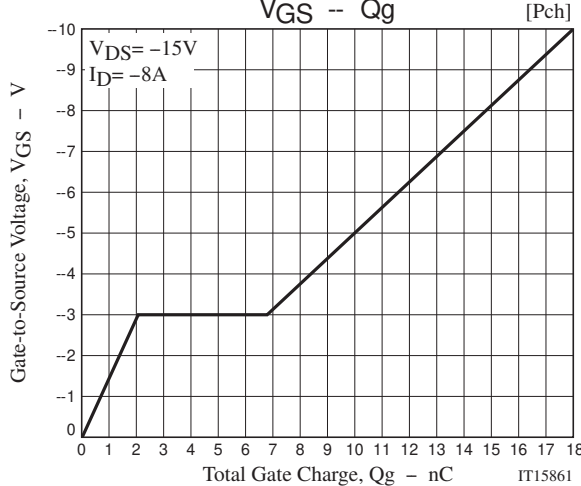
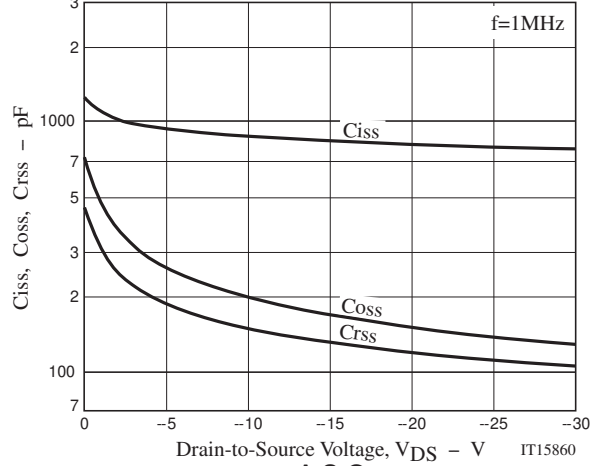
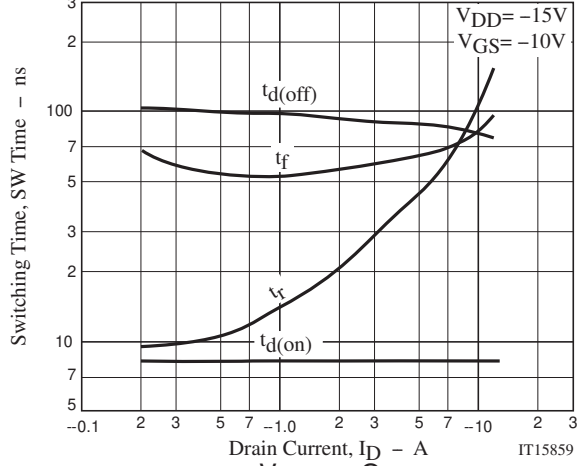
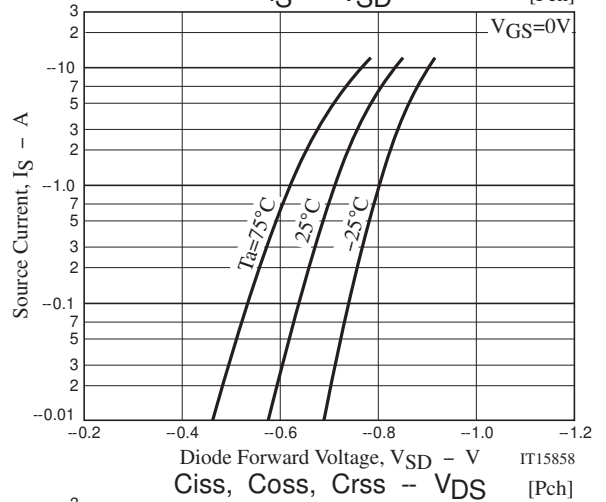
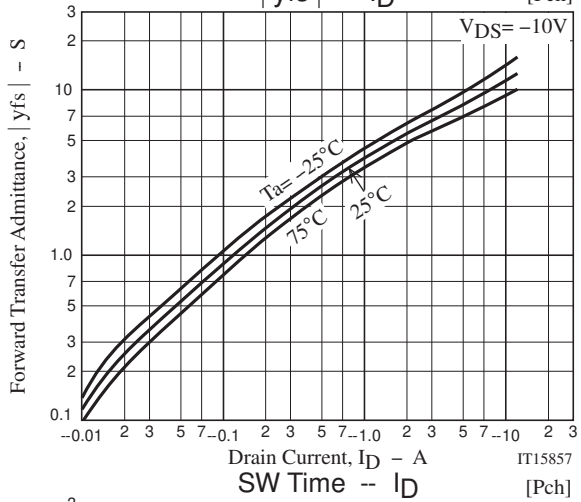
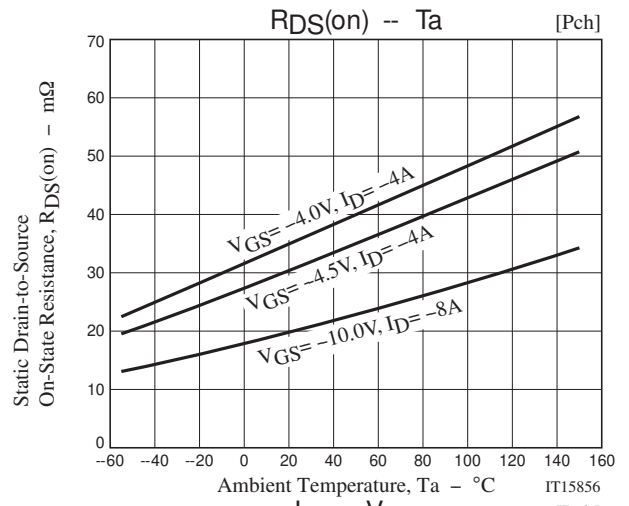
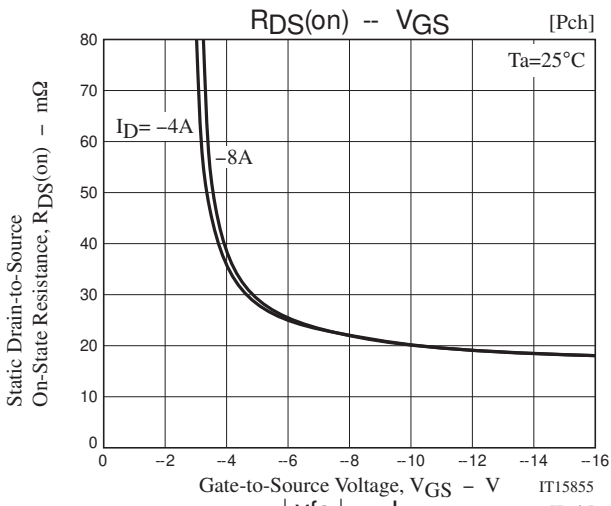
[N-channel]

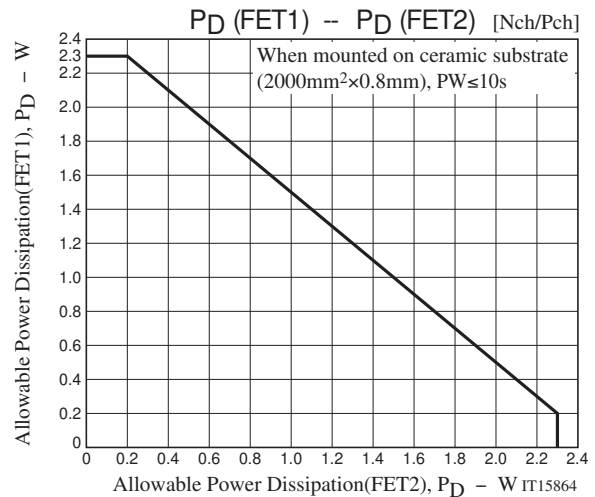
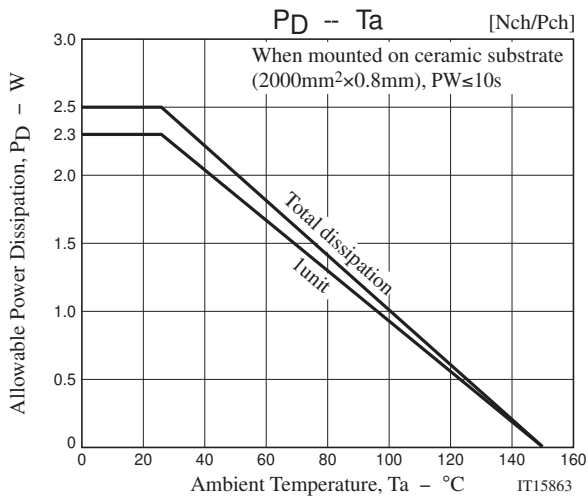


[P-channel]









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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