



SANYO Semiconductors

DATA SHEET

MOSFET : P-Channel Silicon MOSFET
SBD : Schottky Barrier Diode

FW507 — General-Purpose Switching Device Applications

Features

- Composite type with a low ON-resistance, ultrahigh-speed switching, low voltage drive, P-channel MOSFET and a short reverse recovery time, low forward voltage schottky barrier diode facilitating high-density mounting.
- The FW507 incorporates two chips being equivalent to the MCH3312 and the SB1003M in one package.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	V _{DSS}		-30	V
Gate-to-Source Voltage	V _{GSS}		±20	V
Drain Current (DC)	I _D		-3	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-12	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (3000mm²×0.8mm) ≤10s 1unit	2	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V _{RRM}		30	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		35	V
Average Output Current	I _O		1	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	5	A
Junction Temperature	T _J		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Marking : W507

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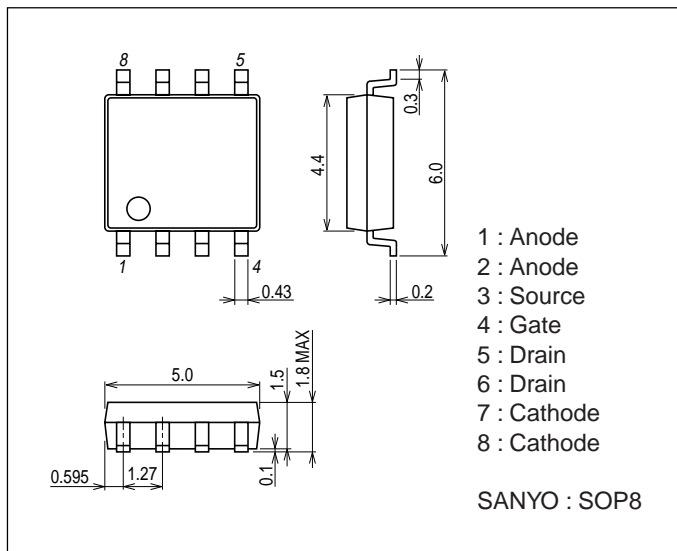
FW507

Electrical Characteristics at Ta=25°C

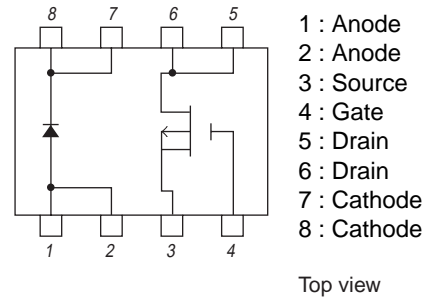
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0V$	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-3A$	1.9	3.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-3A, V_{GS}=-10V$		115	150	$m\Omega$
	$R_{DS(on)2}$	$I_D=-1.5A, V_{GS}=-4V$		210	295	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-10V, f=1MHz$		200		pF
Output Capacitance	C_{oss}	$V_{DS}=-10V, f=1MHz$		47		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-10V, f=1MHz$		32		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		7.2		ns
Rise Time	t_r	See specified Test Circuit.		6.8		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		18		ns
Fall Time	t_f	See specified Test Circuit.		8.0		ns
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-10V, I_D=-3A$		5.5		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-3A$		0.98		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-3A$		0.82		nC
Diode Forward Voltage	V_{SD}	$I_S=-3A, V_{GS}=0V$		-0.91	-1.2	V
[SBD]						
Reverse Voltage	V_R	$I_R=200\mu A$	30			V
Forward Voltage	V_F	$I_F=1A$		0.47	0.55	V
Reverse Current	I_R	$V_R=15V$			15	μA
Interterminal Capacitance	C	$V_R=10V, f=1MHz$		27		pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=100mA$, See specified Test Circuit.			10	ns

Package Dimensions

unit : mm
7005-012

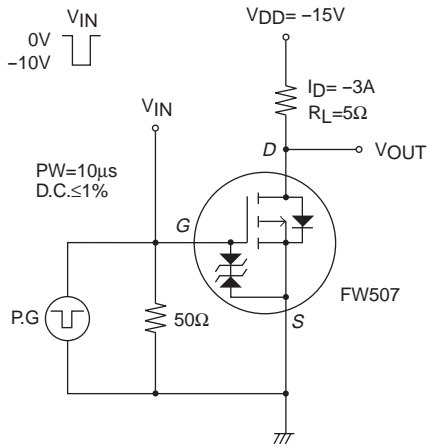


Electrical Connection



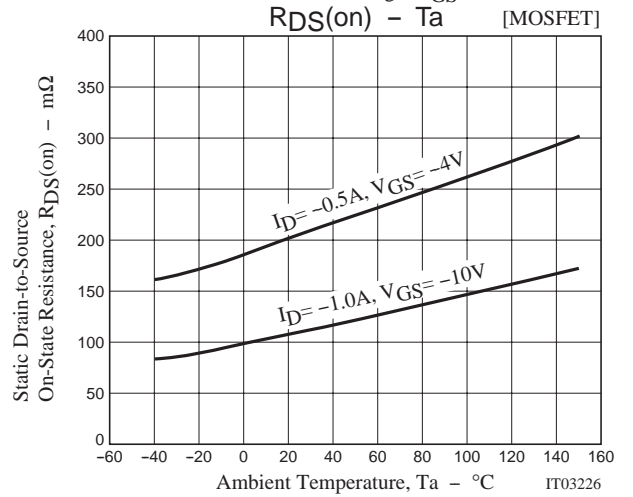
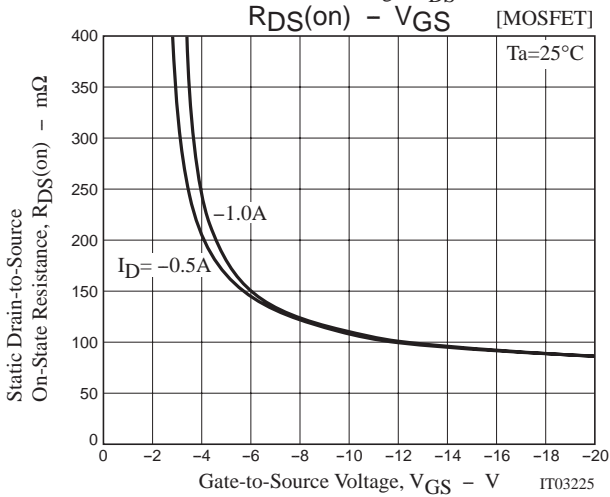
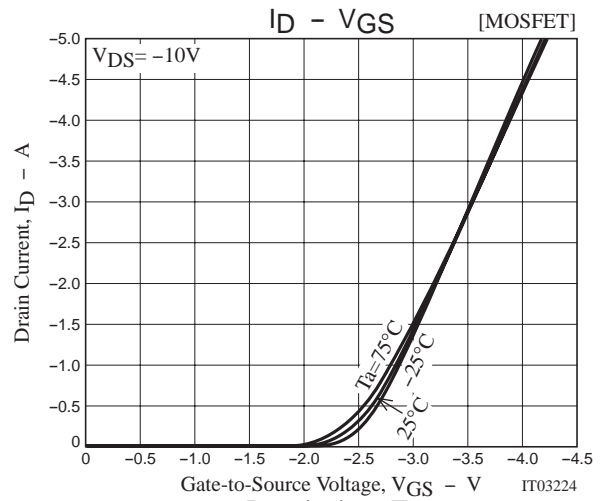
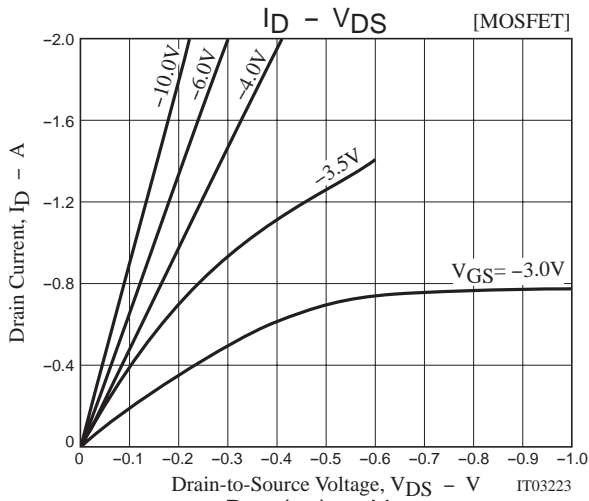
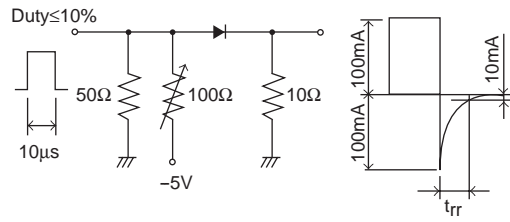
Switching Time Test Circuit

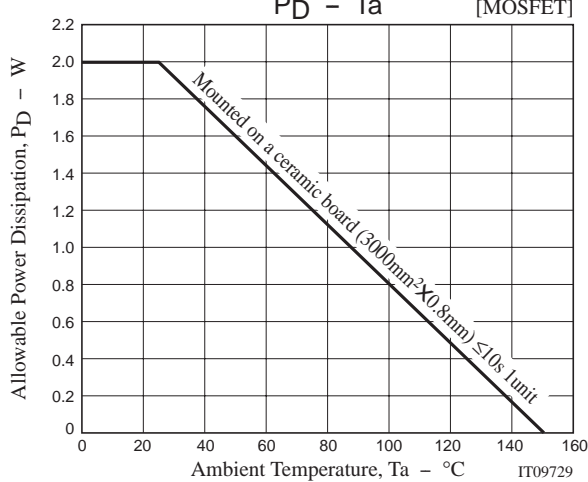
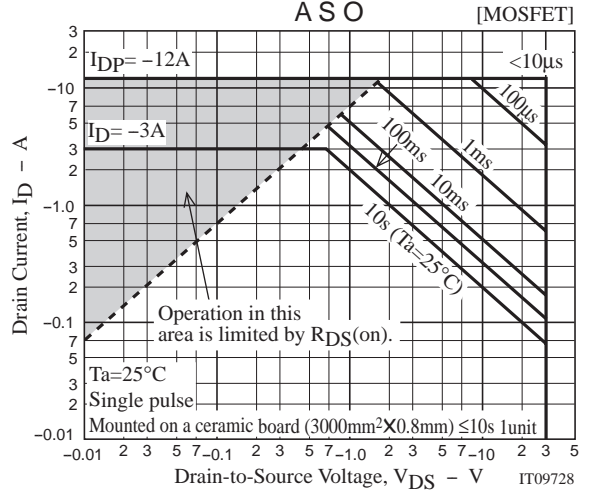
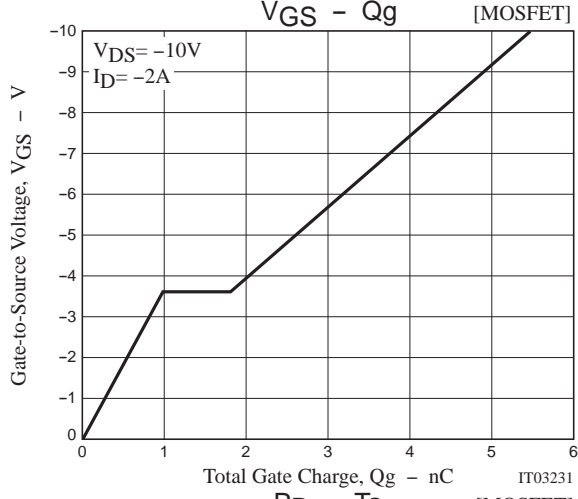
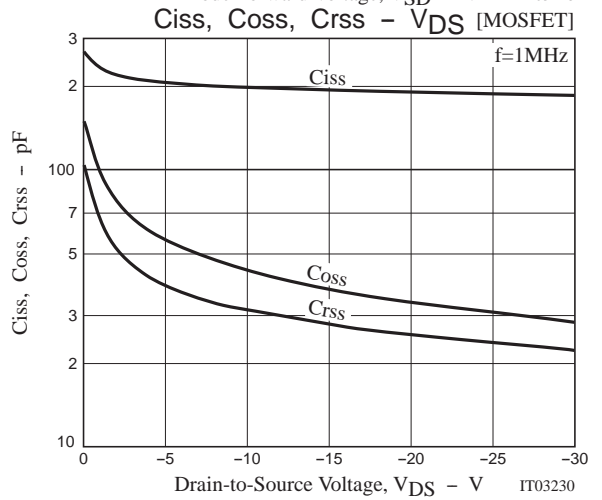
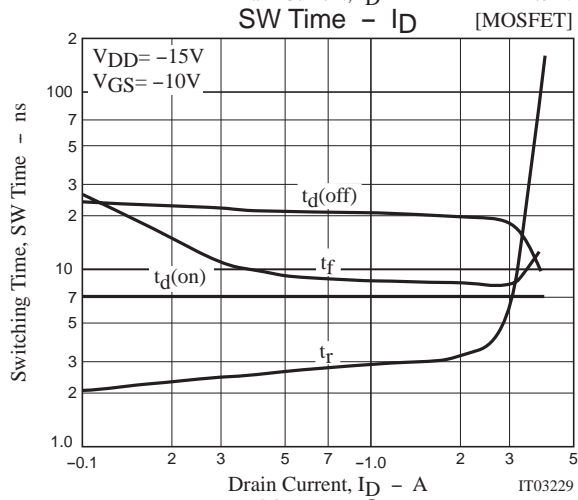
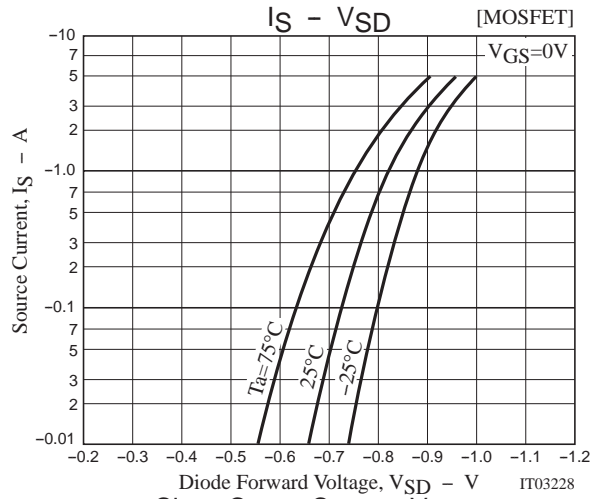
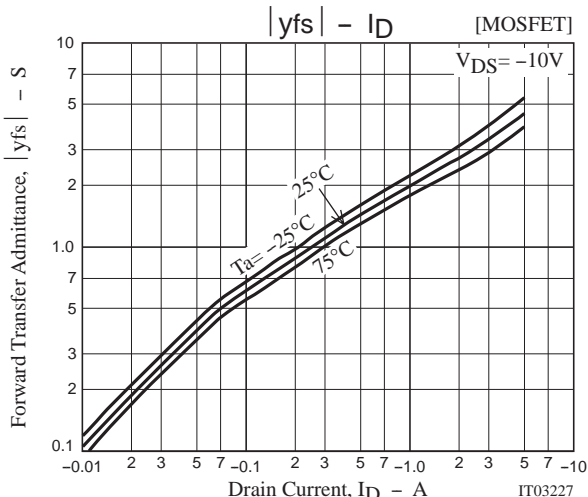
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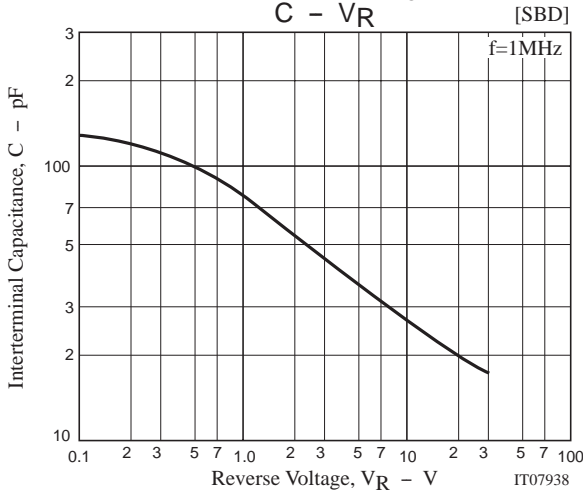
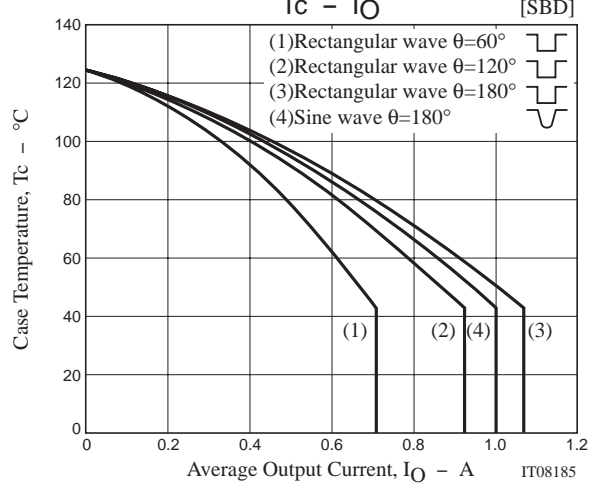
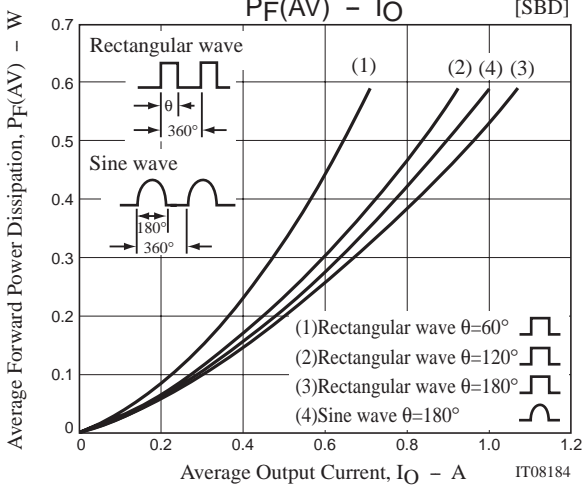
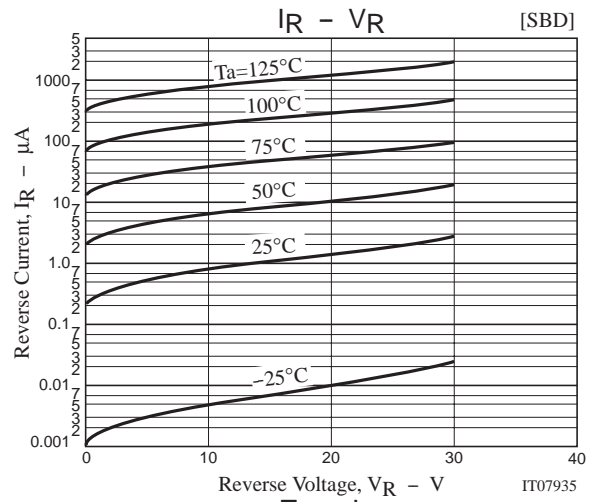
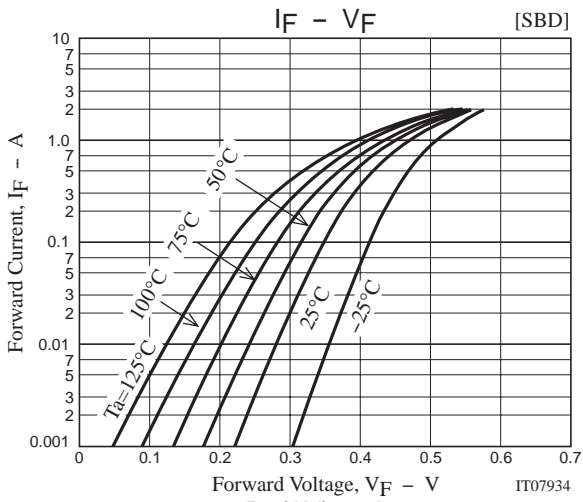


t_{rr} Test Circuit

[SBD]







Note on usage : Since the FW507 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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