Ordering number : ENA0672

SANYO Semiconductors
DATA SHEET

N-Channel Silicon MOSFET

FW248 — General-Purpose Switching Device Applications

Features

- Motor drive application.
- Low ON-resistance.
- 4V drive.
- High-density mounting.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		45	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		6	A
Drain Current (PW≤10s)	I_D	Duty cycle≤1%	7	A
Drain Current (PW≤10μs)	I_{DP}	PW≤10μs, duty cycle≤1%	24	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1500mm²X0.8mm) 1unit, PW≤10s	1.8	W
Total Dissipation	P_T	Mounted on a ceramic board (1500mm²X0.8mm), PW≤10s	2.2	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	45			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=45V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±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	$\|yfs\|$	V_{DS}=10V, I_D=5A	3.7	6.2		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=6A, V_{GS}=10V		26	34	mΩ
	$R_{DS}(on)2$	I_D=3A, V_{GS}=4V		42	59	mΩ

Marking : W248

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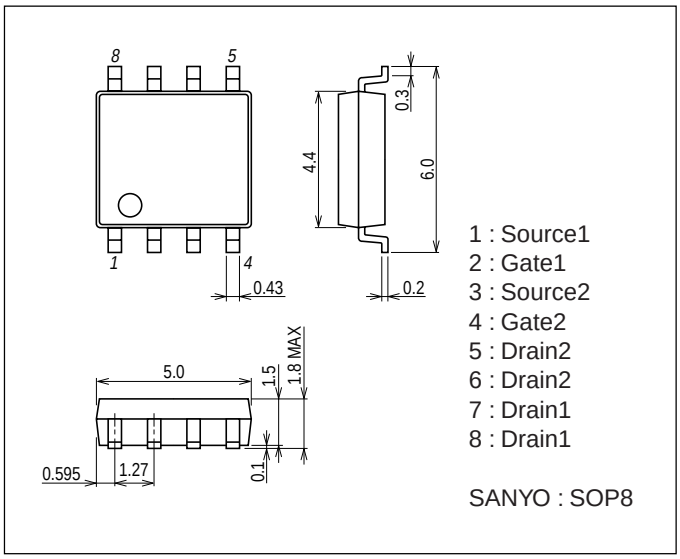
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		1040		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		145		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		105		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		14		ns
Rise Time	t_{r}	See specified Test Circuit.		80		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		85		ns
Fall Time	t_{f}	See specified Test Circuit.		70		ns
Total Gate Charge	Qg	V_{DS}=24V, V_{GS}=10V, I_{D}=6A		23		nC
Gate-to-Source Charge	Qgs	V_{DS}=24V, V_{GS}=10V, I_{D}=6A		3.5		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=24V, V_{GS}=10V, I_{D}=6A		5.0		nC
Diode Forward Voltage	V_{SD}	I_{S}=6A, V_{GS}=0V		0.83	1.2	V

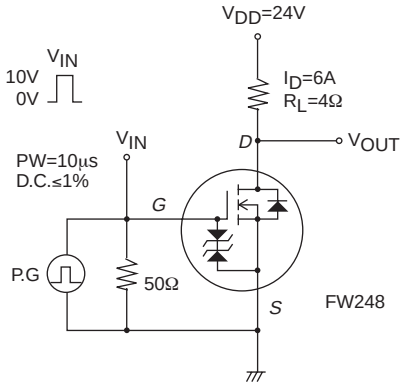
Package Dimensions

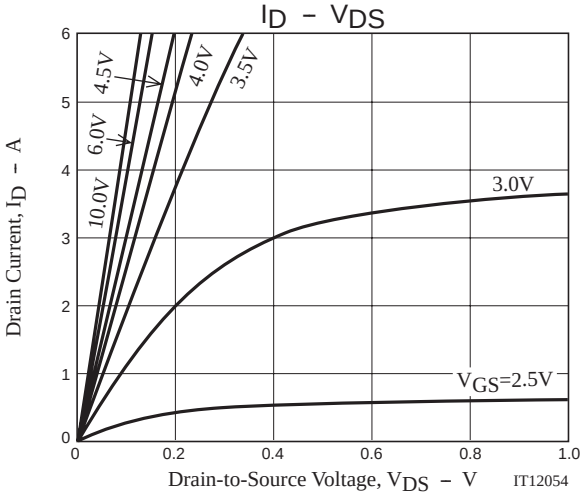
unit : mm (typ)

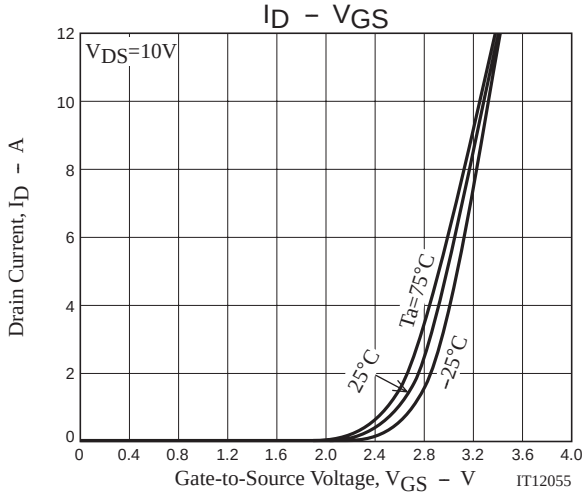
7005-003



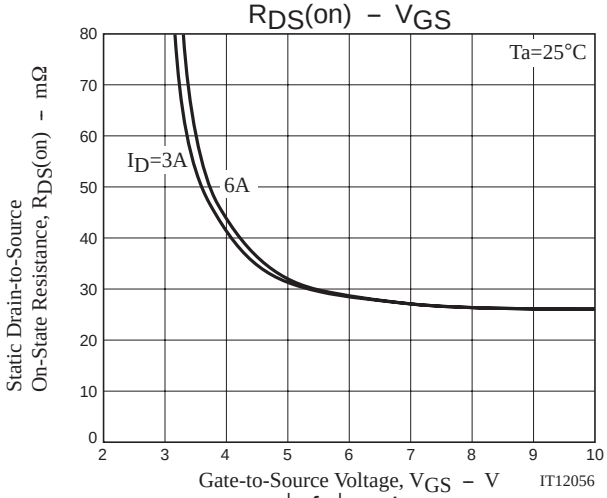
Switching Time Test Circuit



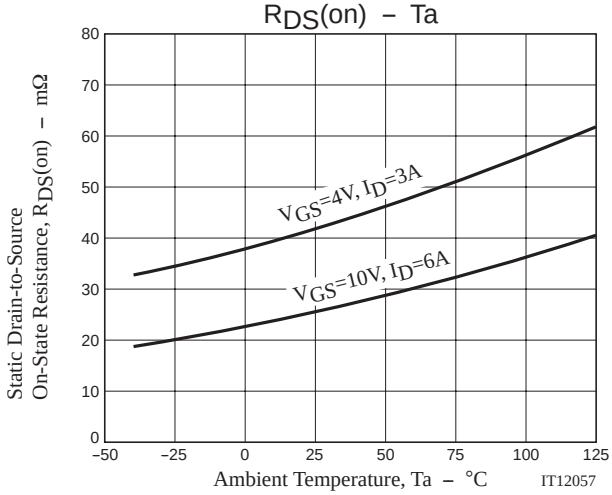




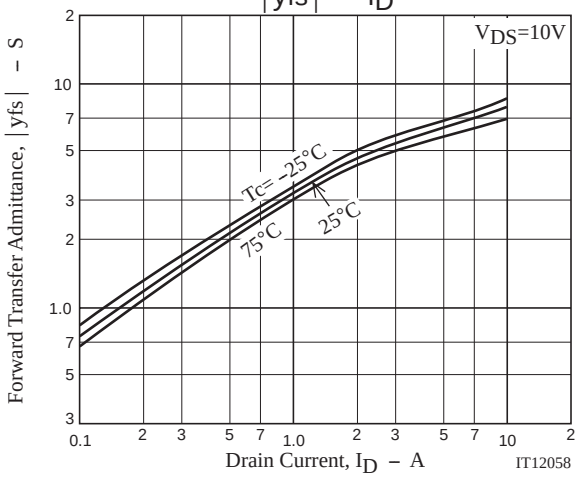
$R_{DS(on)}$ – V_{GS}



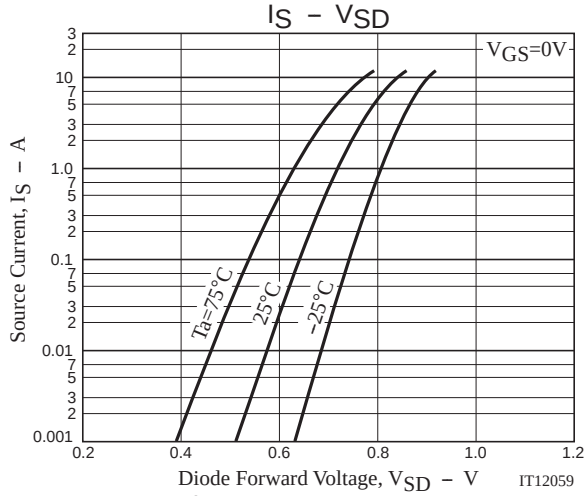
$R_{DS(on)}$ – Ta



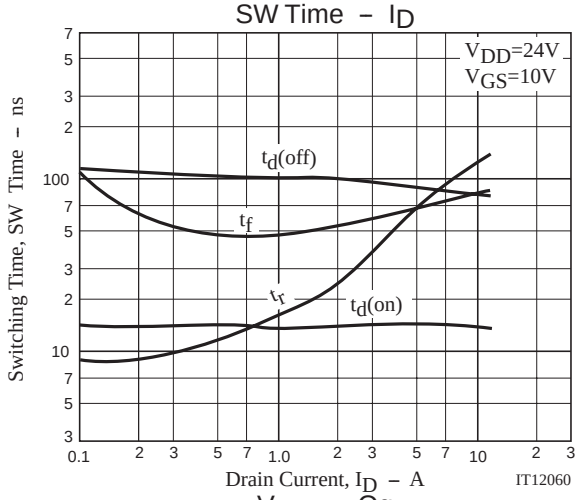
$|yfs|$ – I_D



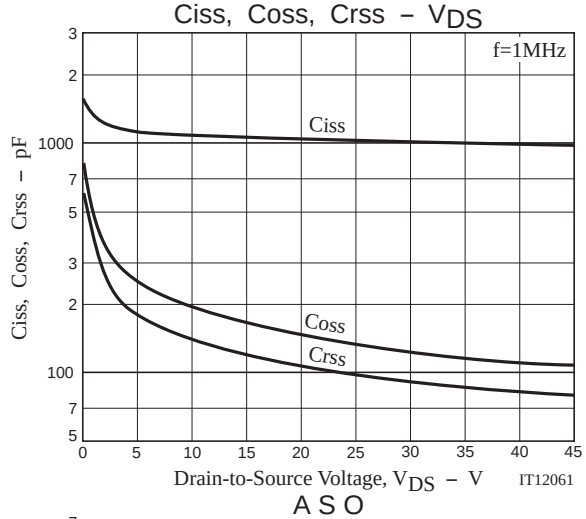
I_S – V_{SD}



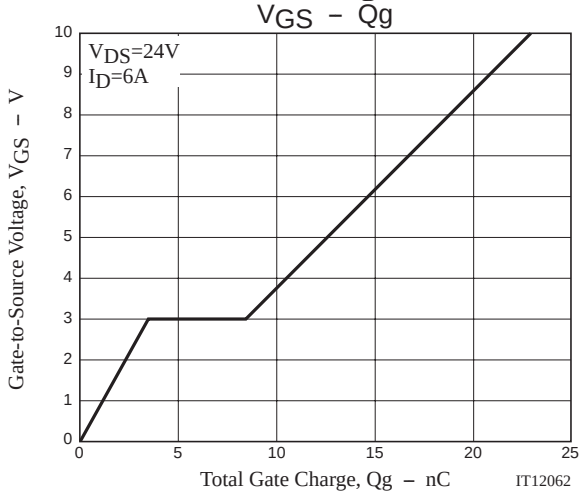
SW Time – I_D



Ciss, Coss, Crss – V_{DS}



V_{GS} – Qg



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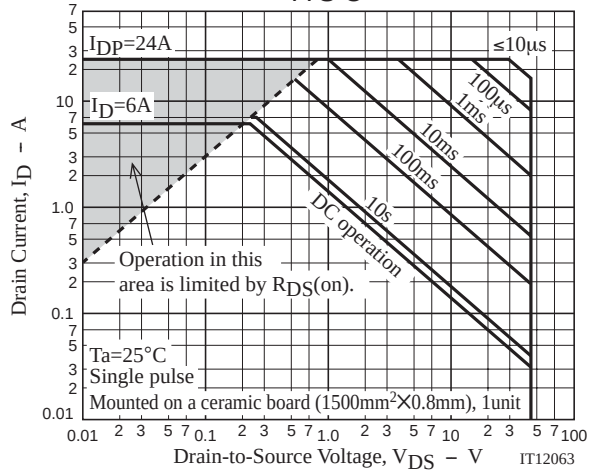

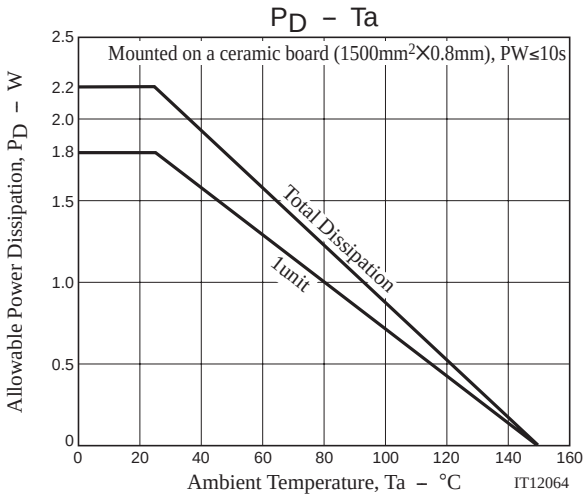

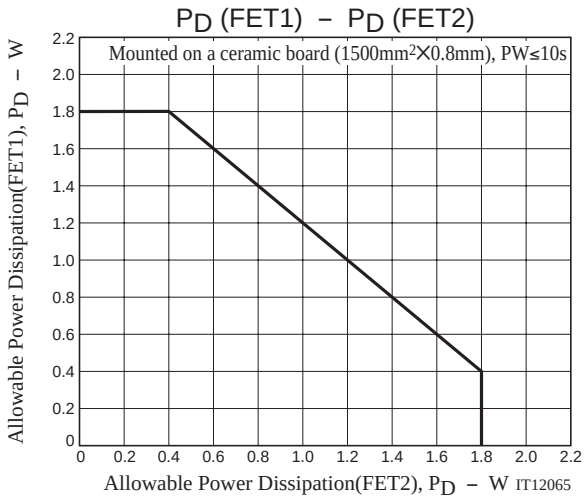

Note on usage : Since the FW248 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.