Ordering number : ENA1176

SANYO Semiconductors
DATA SHEET

N-Channel Silicon MOSFET

FTD2017M — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- 2.5V drive.
- Mount height 1.1mm.
- Composite type, facilitating high-density mounting.
- Drain common specifications.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		20	V
Gate-to-Source Voltage	V_{GSS}		±12	V
Drain Current (DC)	I_D		6	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	40	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (1000mm²X0.8mm) 1unit	1.2	W
Total Dissipation	P_T	When mounted on ceramic substrate (1000mm²X0.8mm)	1.25	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	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}= ±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	0.5		1.3	V
Forward Transfer Admittance	|yfs|	V_{DS}=10V, I_D=6A	5	8.5		S

Marking : D2017M

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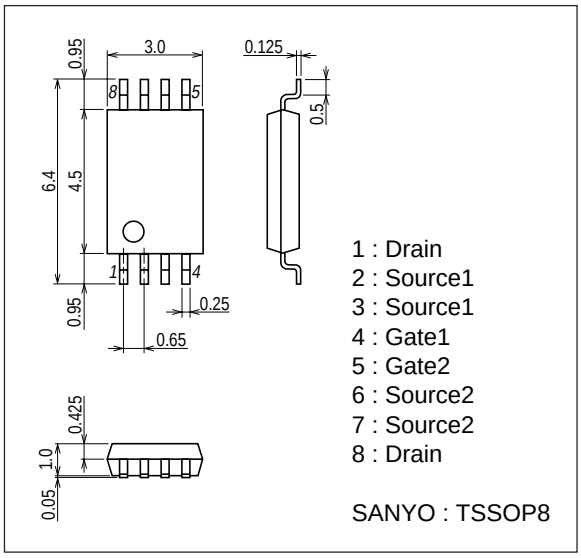
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=6A, V_{GS}=4.5V	13	17	23	mΩ
	$R_{DS}(on)2$	I_D=6A, V_{GS}=4V	14	18	24	mΩ
	$R_{DS}(on)3$	I_D=3A, V_{GS}=3.1V	15	19	30	mΩ
	$R_{DS}(on)4$	I_D=3A, V_{GS}=2.5V	15.4	20	33	mΩ
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		930		ns
Rise Time	t_r	See specified Test Circuit.		1460		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		6400		ns
Fall Time	t_f	See specified Test Circuit.		3040		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4.5V, I_D=6A		10		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4.5V, I_D=6A		2		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=4.5V, I_D=6A		2.5		nC
Diode Forward Voltage	V_{SD}	I_S=6A, V_{GS}=0V		0.8	1.2	V

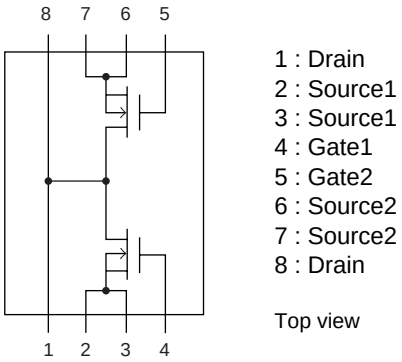
Package Dimensions

unit : mm (typ)

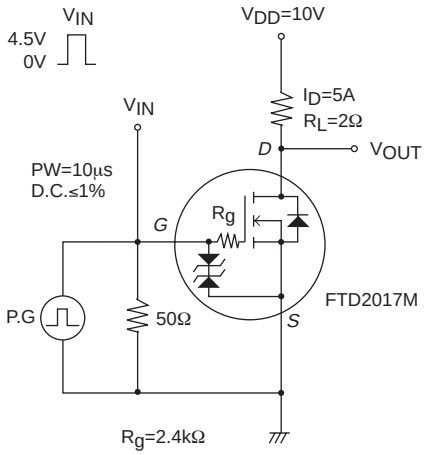
7006A-005

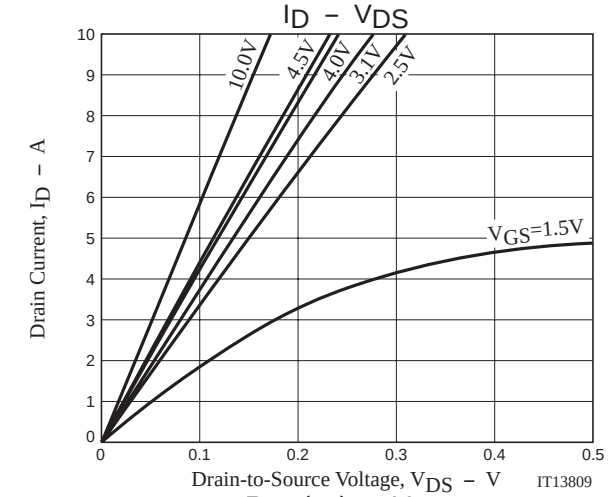


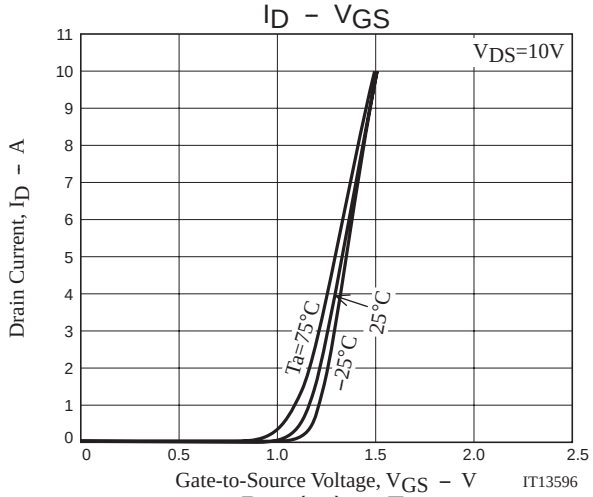
Electrical Connection

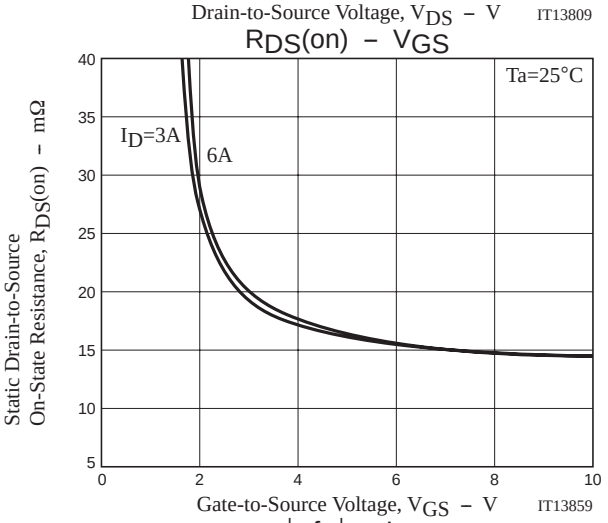


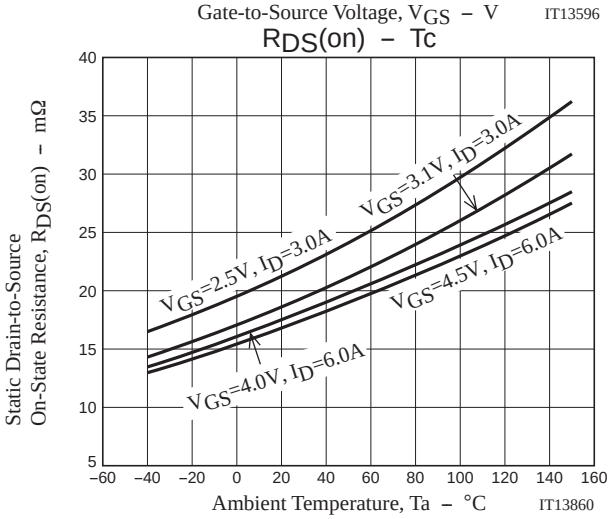
Switching Time Test Circuit

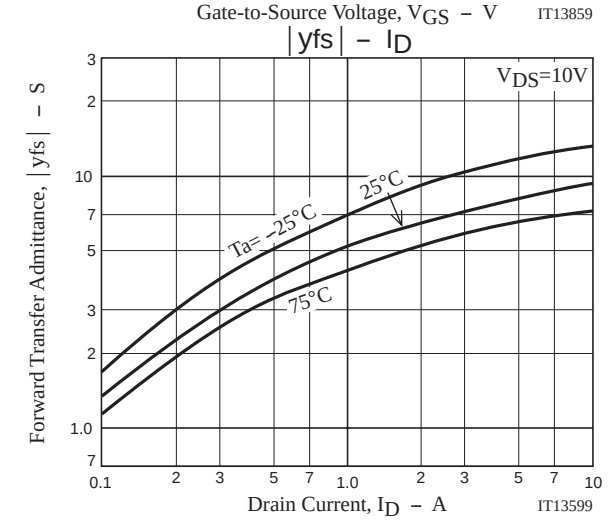


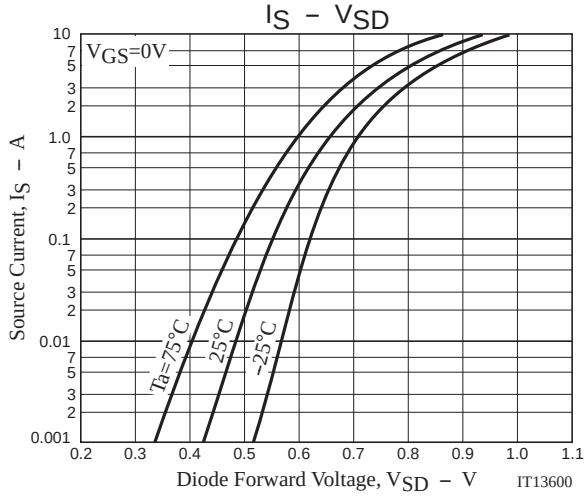

ID – VDS
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT13809
10.0V
4.5V
4.0V
3.1V
2.5V
VGS=1.5V

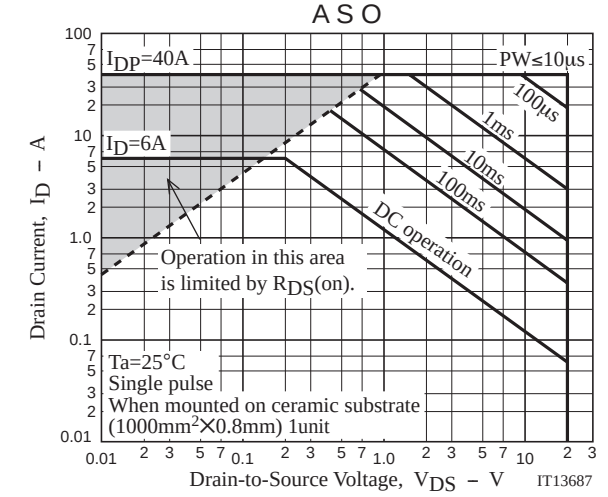

ID – VGS
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT13596
VDS=10V
Ta=75°C
25°C
–25°C

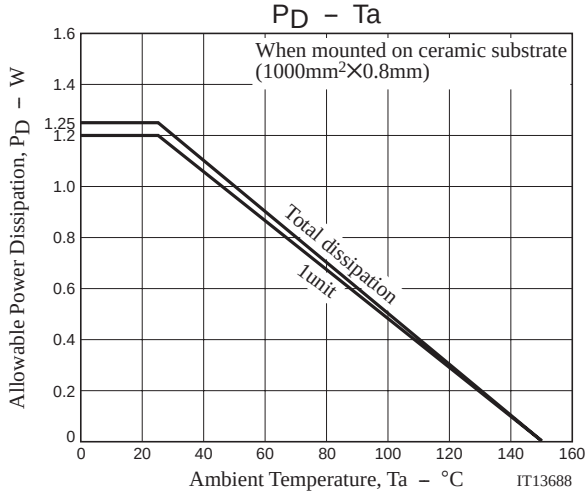

RDS(on) – VGS
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT13859
Ta=25°C
ID=3A
6A


RDS(on) – Tc
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT13860
VGS=3.1V, ID=3.0A
VGS=2.5V, ID=3.0A
VGS=4.5V, ID=6.0A
VGS=4.0V, ID=6.0A


|yfs| – ID
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT13599
VDS=10V
Ta=–25°C
25°C
75°C


IS – VSD
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT13600
VGS=0V
Ta=75°C
25°C
–25°C


A S O
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT13687
IDP=40A
PW≤10μs
ID=6A
100μs
1ms
10ms
100ms
DC operation
Operation in this area
is limited by RDS(on).
Ta=25°C
Single pulse
When mounted on ceramic substrate
(1000mm2×0.8mm) 1unit


PD – Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT13688
When mounted on ceramic substrate
(1000mm2×0.8mm)
Total dissipation
1unit

Note on usage : Since the FTD2017M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

This catalog provides information as of July, 2008. Specifications and information herein are subject to change without notice.