Ordering number : ENN7476

N-Channel Silicon MOSFET

FTD2011A

Load Switching Applications

Features

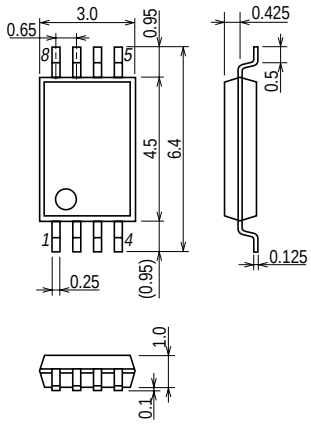
- Low ON-resistance.
- 2.5V drive.
- Mounting height 1.1mm.
- Composite type, facilitating high-density mounting.

Package Dimensions

unit : mm

2155A

[FTD2011A]



1 : Drain1
2 : Source1
3 : Source1
4 : Gate1
5 : Gate2
6 : Source2
7 : Source2
8 : Drain2

SANYO : TSSOP8

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		4	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	20	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1300mm²×0.8mm)1unit	0.8	W
Total Dissipation	P_T	Mounted on a ceramic board (1300mm²×0.8mm)	1.3	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}=0	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0			±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=4A	5	7		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=4A, V_{GS}=4V		22	39	mΩ
	$R_{DS}(on)2$	I_D=2A, V_{GS}=2.5V		30	56	mΩ

Marking : D2011A

Continued on next page.

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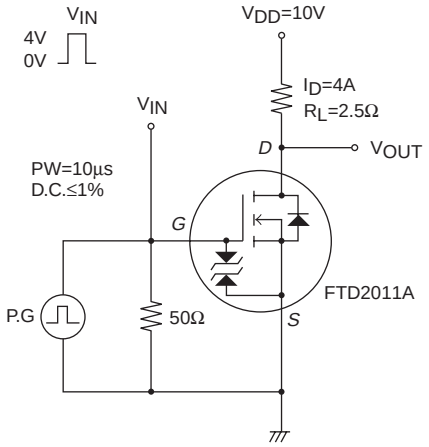
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

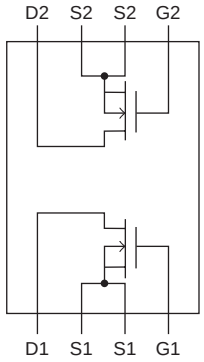
Continued from preceding page.

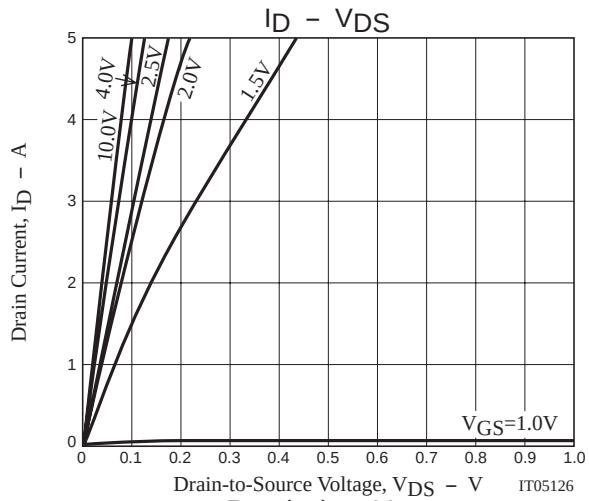
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		740		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		150		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		38		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		15		ns
Rise Time	t_r	See specified Test Circuit.		120		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		88		ns
Fall Time	t_f	See specified Test Circuit.		120		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4V, I_D=4A		10		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4V, I_D=4A		2		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=4V, I_D=4A		3.5		nC
Diode Forward Voltage	V_{SD}	I_S=4A, V_{GS}=0		0.82	1.2	V

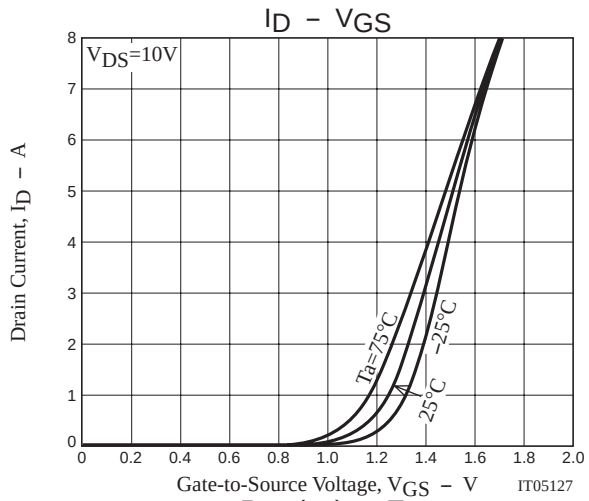
Switching Time Test Circuit

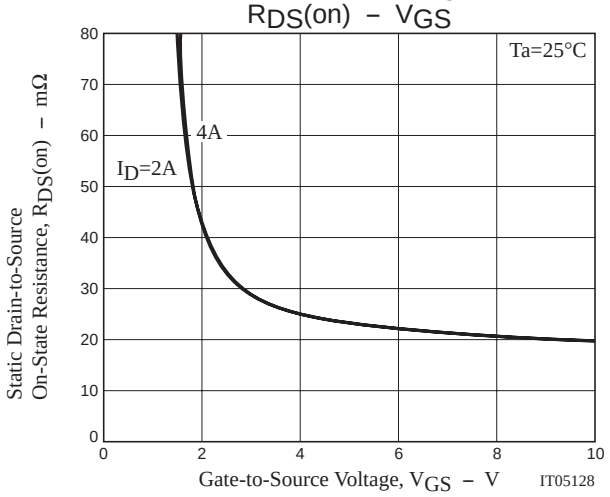


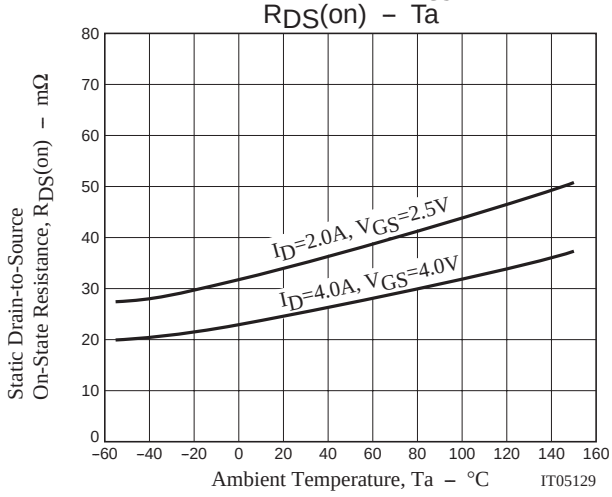
Electrical Connection

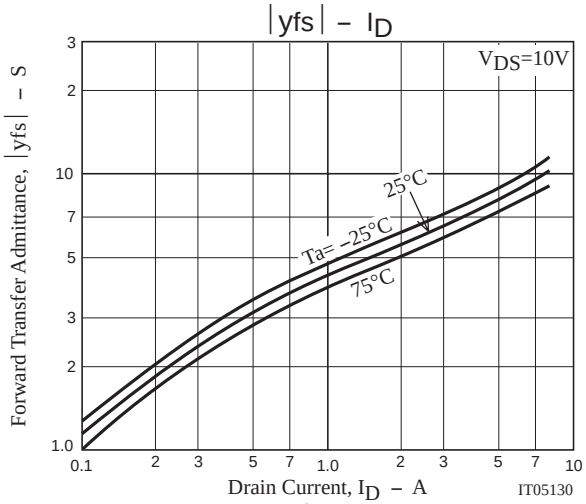


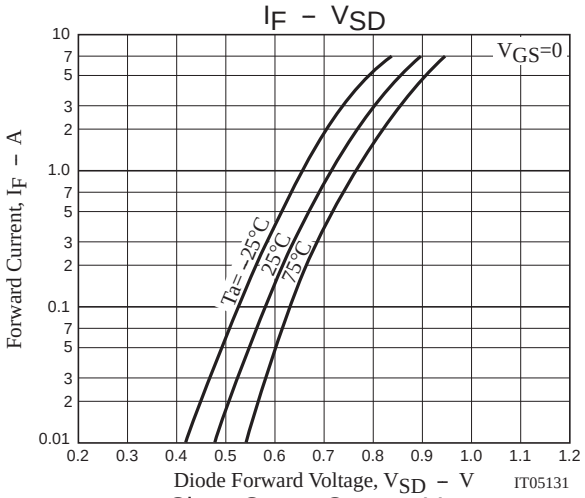


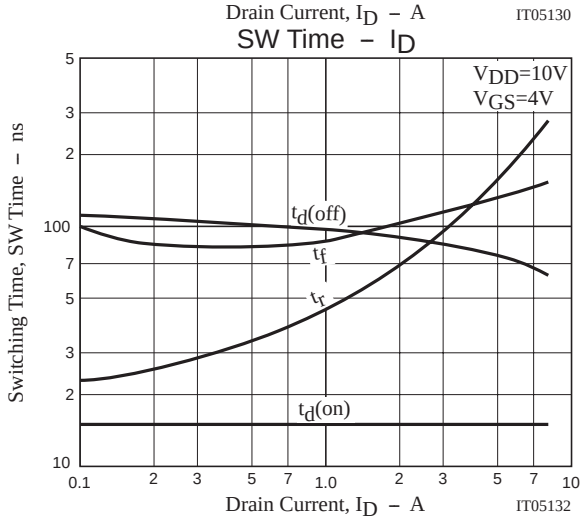


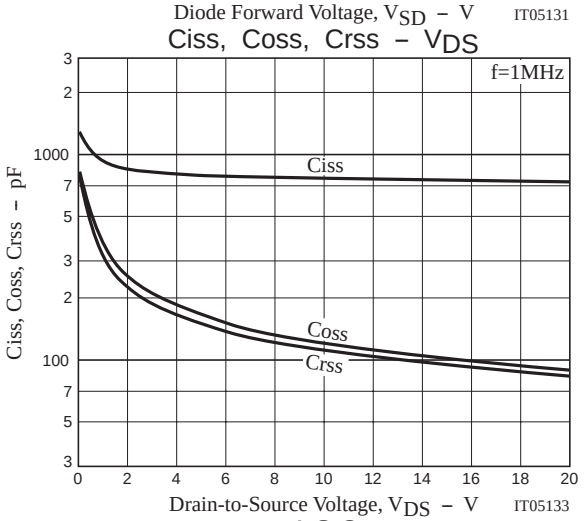


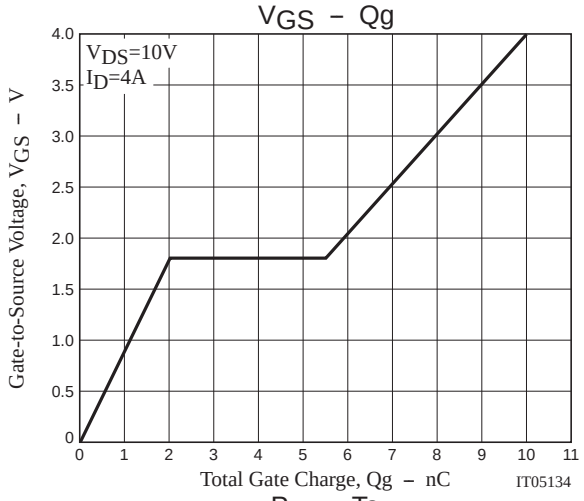


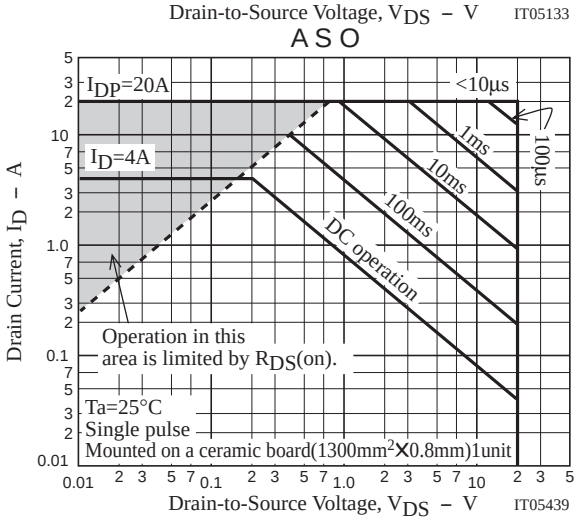

|yfs| – ID
VDS=10V
25°C
Ta= –25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT05130

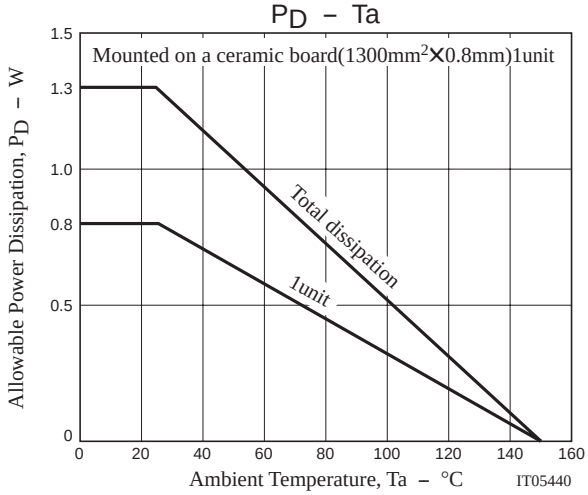

IF – VSD
VGS=0
Ta= –25°C
25°C
75°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT05131


SW Time – ID
VDD=10V
VGS=4V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT05132


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT05133


VGS – Qg
VDS=10V
ID=4A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT05134


ASO
IDP=20A
ID=4A
<10μs
1ms
10ms
100ms
100μs
DC operation
Operation in this
area is limited by RDS(on).
Ta=25°C
Single pulse
Mounted on a ceramic board(1300mm²×0.8mm)1unit
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT05439


PD – Ta
Mounted on a ceramic board(1300mm²×0.8mm)1unit
Total dissipation
1unit
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT05440

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