Ordering number:ENN6361

N-Channel Silicon MOSFET

FTD2017

Load Switching Applications

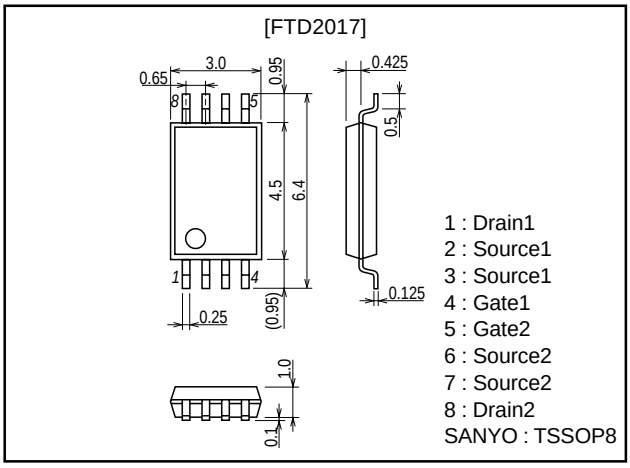
Features

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

Package Dimensions

unit:mm

2155A



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}		±10	V
Drain Current (DC)	I_D		5	A
Drain Current (pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	20	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1000mm²×0.8mm) 1unit	0.8	W
Total Dissipation	P_T	Mounted on a ceramic board (1000mm²×0.8mm)	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	0.4		1.3	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=5A	11.2	16		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=5A, V_{GS}=4V		17	23	mΩ
	R_{DS}(on)2	I_D=2A, V_{GS}=2.5V		20	29	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		1500		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		350		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		230		pF

Marking : D2017

Continued on next page.

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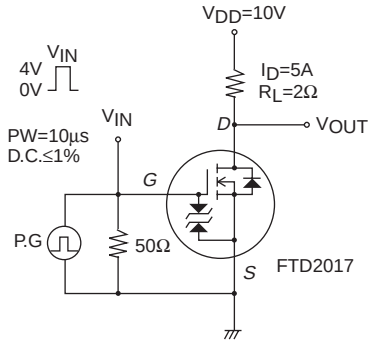
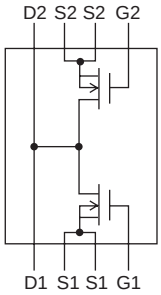
Continued from preceding page.

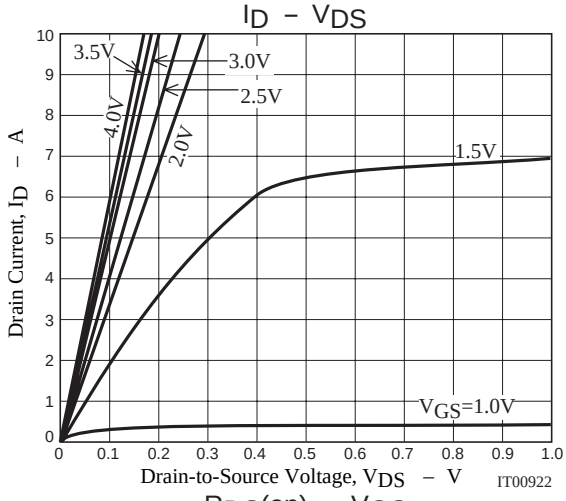
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	t_d(on)	See Specified Test Circuit		19		ns
Rise Time	t_r	See Specified Test Circuit		190		ns
Turn-OFF Delay Time	t_d(off)	See Specified Test Circuit		90		ns
Fall Time	t_f	See Specified Test Circuit		160		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=5A		42		nC
Gate-to-Source Charge	Qgs			4		nC
Gate-to-Drain "Miller" Charge	Qgd			8		nC
Diode Forward Voltage	V_{SD}	I_S=5A, V_{GS}=0		0.8	1.2	V

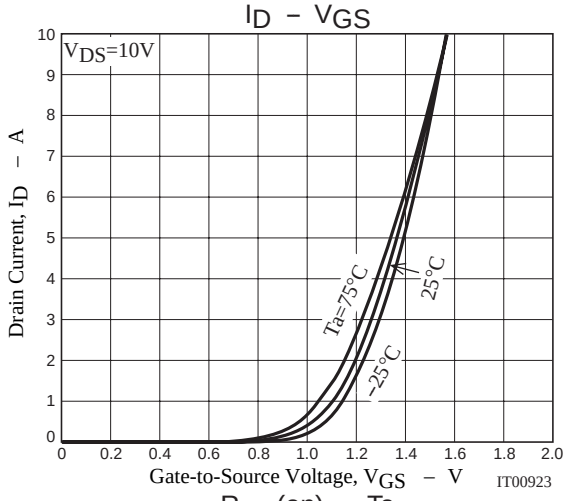
Switching Time Test Circuit

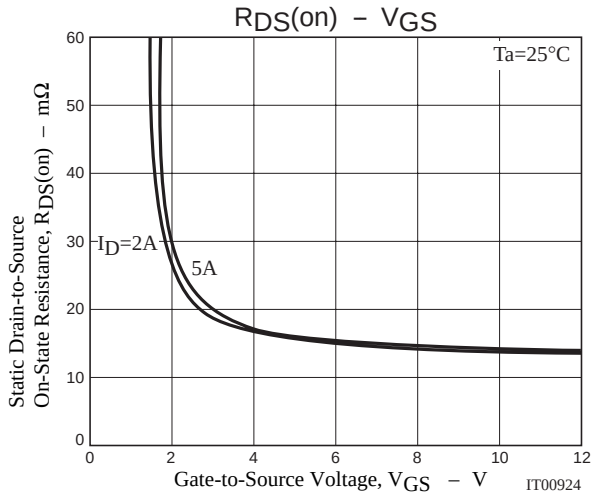


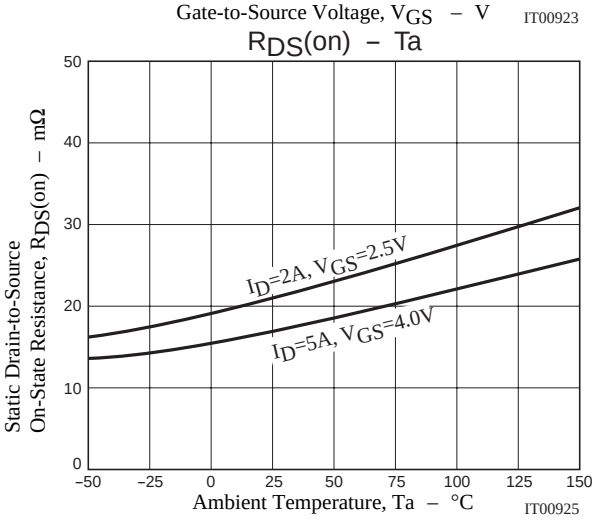
Electrical Connection

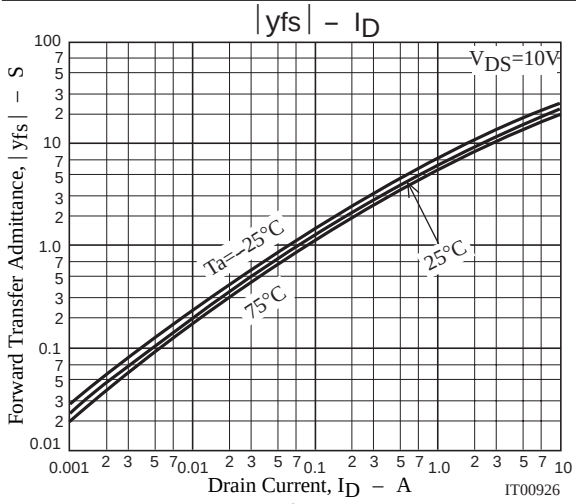


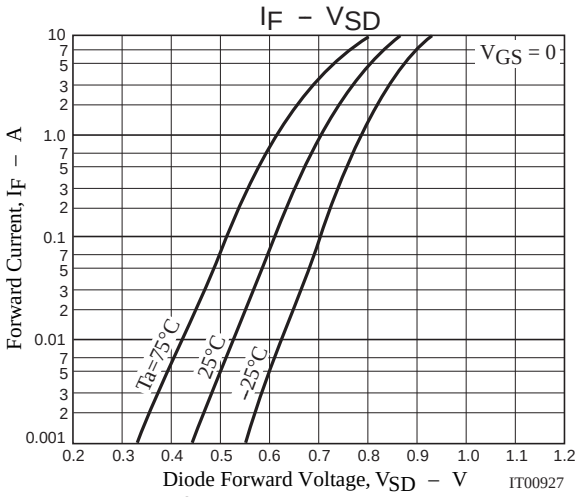


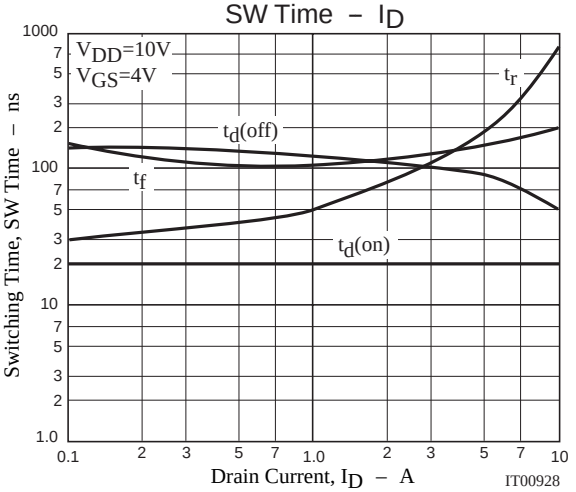


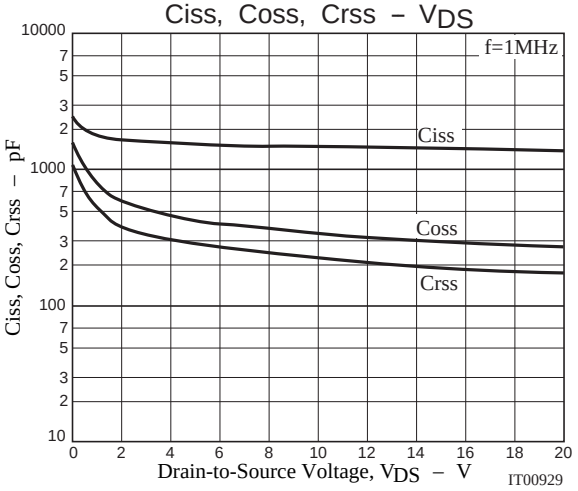


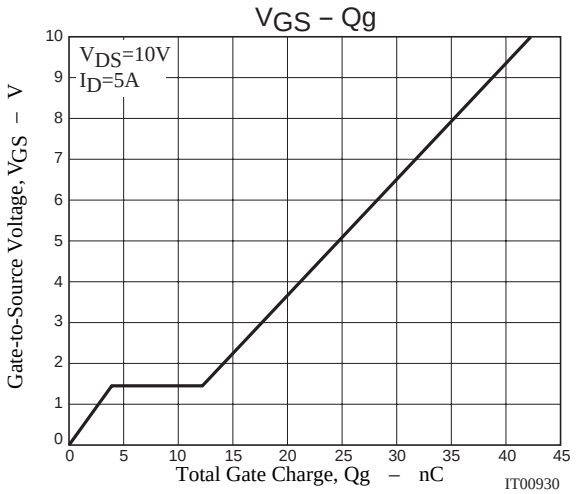


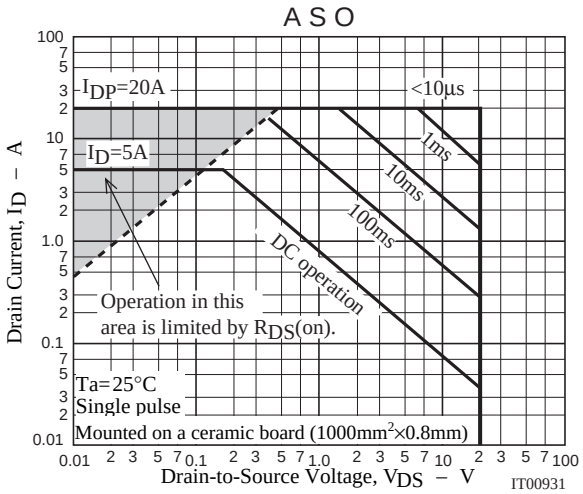

|yfs| – ID
VDS=10V
Ta=–25°C
25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT00926

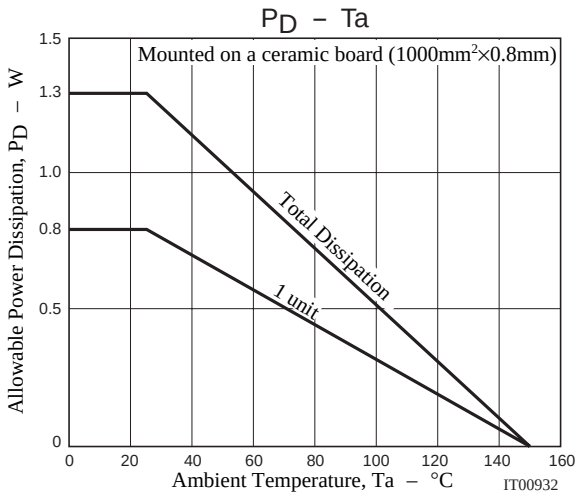

IF – VSD
VGS = 0
Ta=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT00927


SW Time – ID
VDD=10V
VGS=4V
tr
td(off)
tf
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT00928


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT00929


VGS – Qg
VDS=10V
ID=5A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT00930


A S O
IDP=20A
<10μs
ID=5A
1ms
10ms
100ms
DC operation
Operation in this
area is limited by RDS(on).
Ta=25°C
Single pulse
Mounted on a ceramic board (1000mm²×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT00931


PD – Ta
Mounted on a ceramic board (1000mm²×0.8mm)
Total Dissipation
1 unit
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT00932