Ordering number:ENN6428

P-Channel Silicon MOSFET

FTD1003

Load Switching Applications

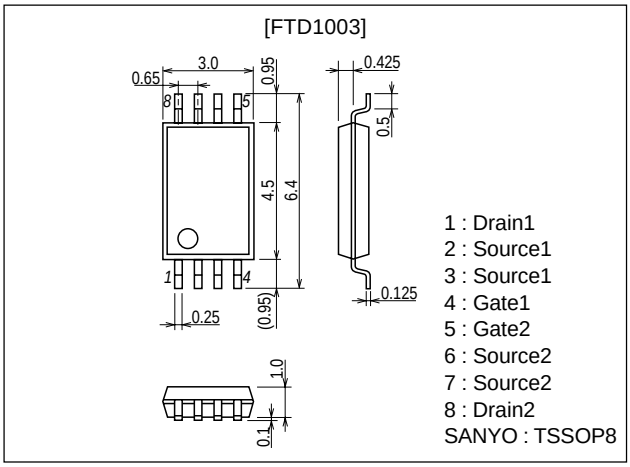
Features

- 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		–1.4	A
Drain Current (pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	–5.6	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)	1.0	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			–10	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		–1.4	V
Forward Transfer Admittance	| yfs |	V_{DS}=–10V, I_D=–1.4A	2.1	3		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=–1.4A, V_{GS}=–4V		235	315	mΩ
	$R_{DS}(on)2$	I_D=–0.7A, V_{GS}=–2.5V		340	480	mΩ
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		180		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		90		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		43		pF

Marking : D1003

Continued on next page.

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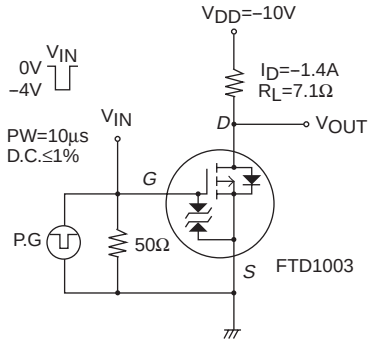
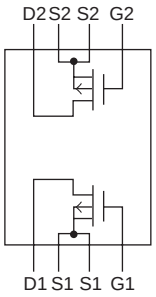
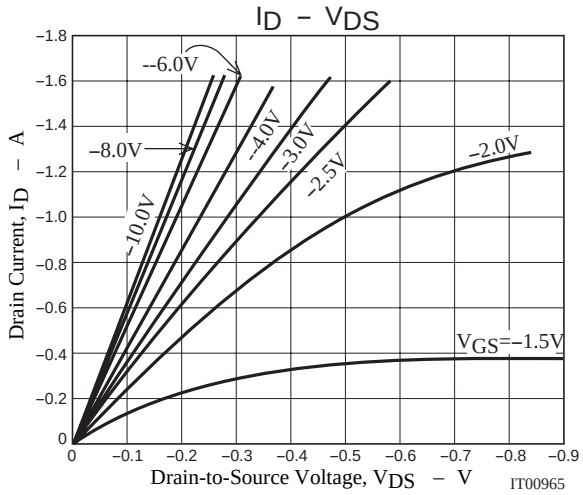
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	t_d(on)	See Specified Test Circuit		10		ns
Rise Time	t_r	See Specified Test Circuit		380		ns
Turn-OFF Delay Time	t_d(off)	See Specified Test Circuit		280		ns
Fall Time	t_f	See Specified Test Circuit		310		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_D=–1.4A		9.5		nC
Gate-to-Source Charge	Qgs			1		nC
Gate-to-Drain "Miller" Charge	Qgd			1.5		nC
Diode Forward Voltage	V_{SD}	I_S=–1.4A, V_{GS}=0		–0.83	–1.2	V

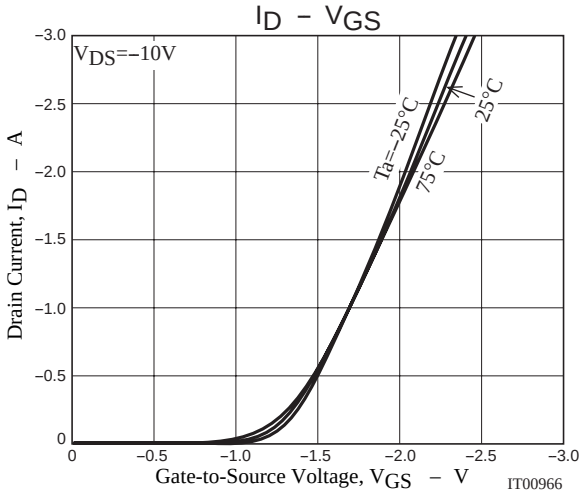
Switching Time Test Circuit

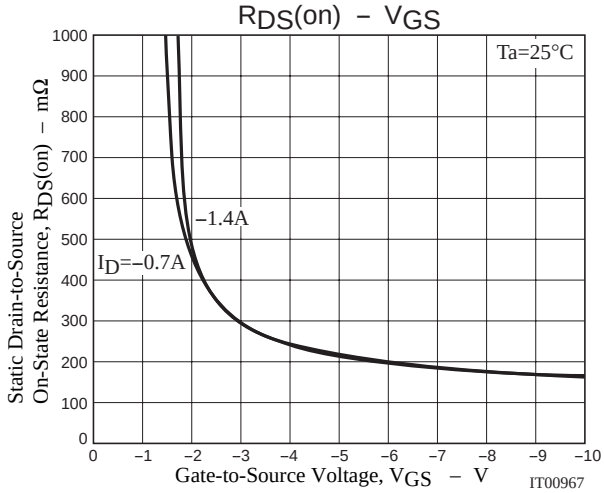


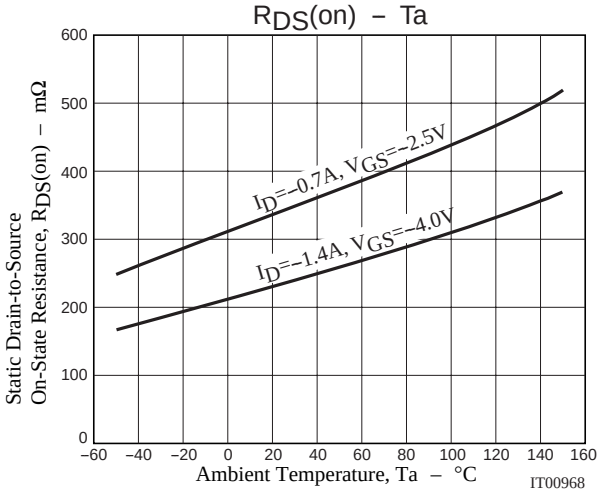
Electrical Connection

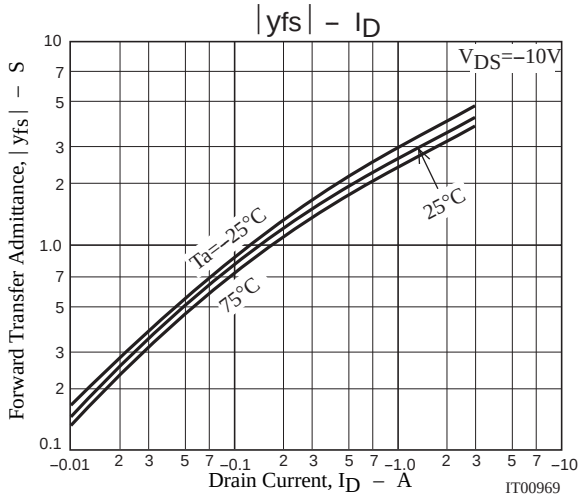


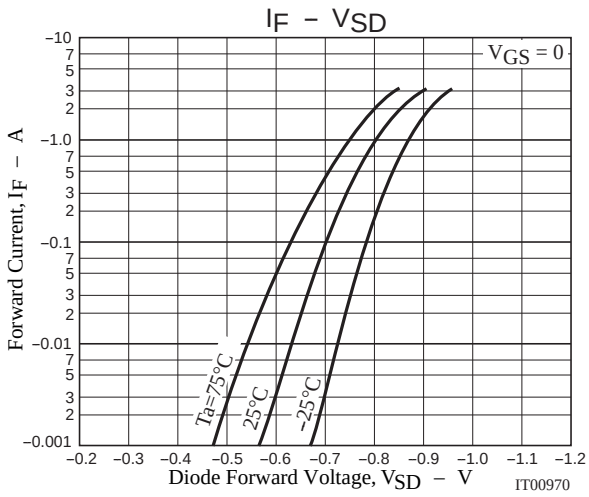


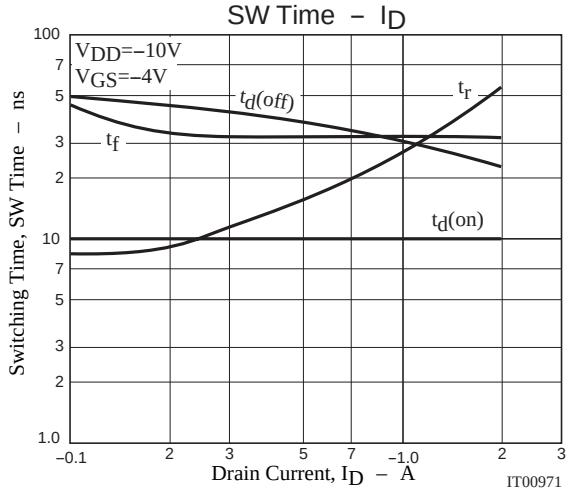


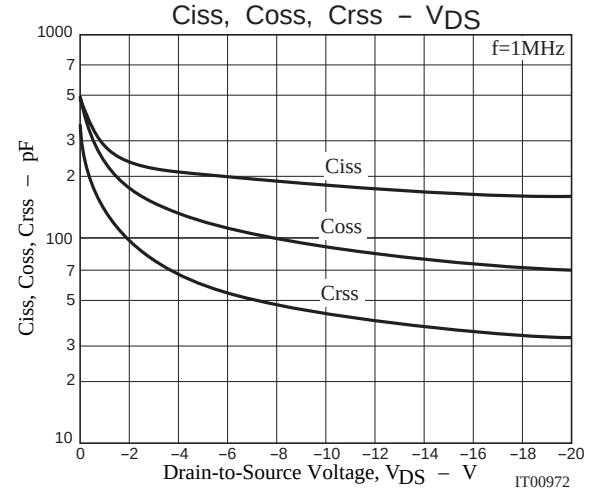


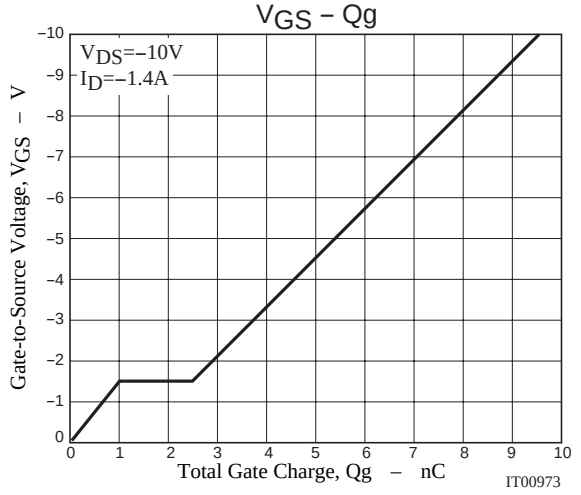


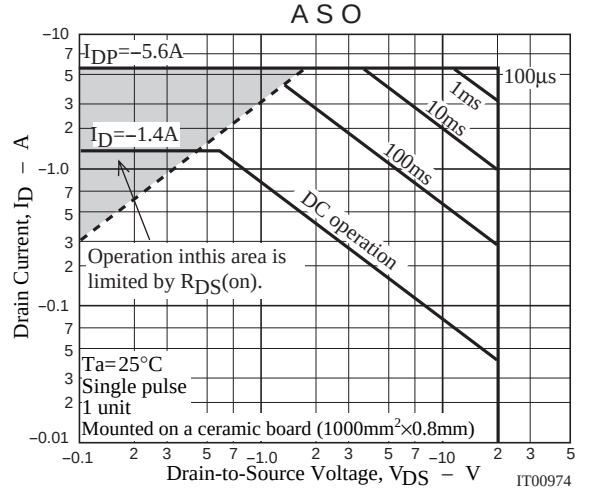

|yfs| – ID
VDS=–10V
Ta=–25°C
25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT00969

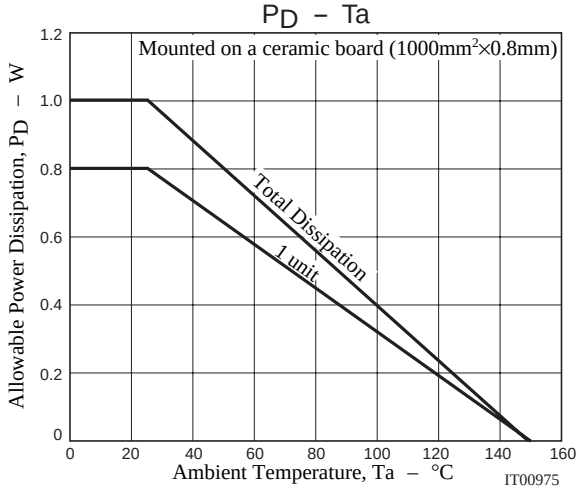

IF – VSD
VGS = 0
Ta=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT00970

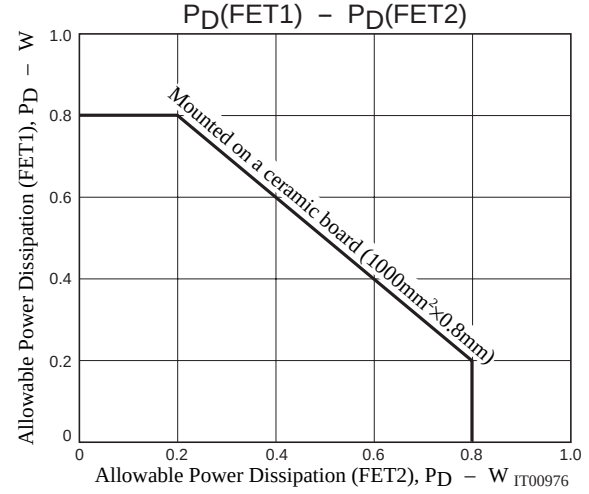

SW Time – ID
VDD=–10V
VGS=–4V
td(off)
tr
tf
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT00971


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT00972


VGS – Qg
VDS=–10V
ID=–1.4A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT00973


A S O
IDP=–5.6A
100µs
1ms
10ms
100ms
DC operation
ID=–1.4A
Operation inthis area is
limited by RDS(on).
Ta=25°C
Single pulse
1 unit
Mounted on a ceramic board (1000mm²×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT00974


PD – Ta
Mounted on a ceramic board (1000mm²×0.8mm)
Total Dissipation
1 unit
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT00975


PD(FET1) – PD(FET2)
Mounted on a ceramic board (1000mm²×0.8mm)
Allowable Power Dissipation (FET1), PD – W
Allowable Power Dissipation (FET2), PD – W
IT00976