



# FTD1003

## Load Switching Applications

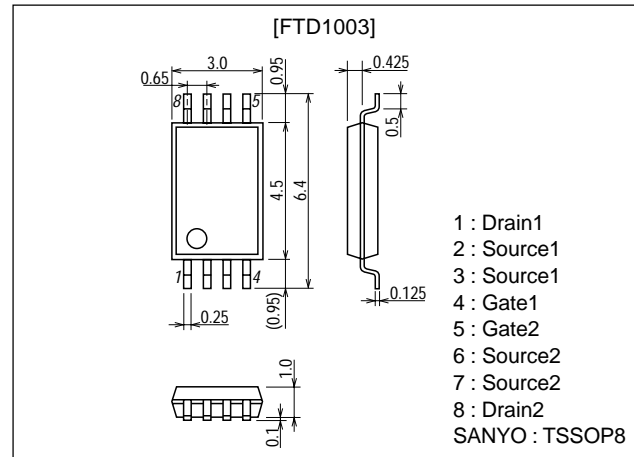
### Features

- 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  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-20	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		-1.4	A
Drain Current (pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-5.6	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm) 1 unit	0.8	W
Total Dissipation	$P_T$	Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm)	1.0	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** at  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}$ , $V_{GS} = 0$	-20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20\text{V}$ , $V_{GS} = 0$			-10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8\text{V}$ , $V_{DS} = 0$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}$ , $I_D = -1\text{mA}$	-0.4		-1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}$ , $I_D = -1.4\text{A}$	2.1	3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -1.4\text{A}$ , $V_{GS} = -4\text{V}$		235	315	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -0.7\text{A}$ , $V_{GS} = -2.5\text{V}$		340	480	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -10\text{V}$ , $f = 1\text{MHz}$		180		pF
Output Capacitance	$C_{oss}$	$V_{DS} = -10\text{V}$ , $f = 1\text{MHz}$		90		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -10\text{V}$ , $f = 1\text{MHz}$		43		pF

Marking : D1003

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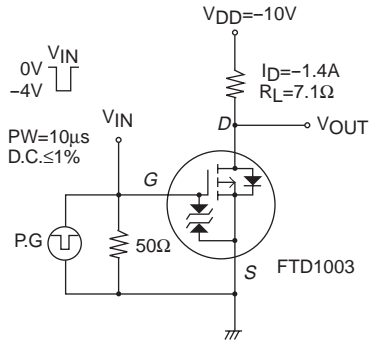
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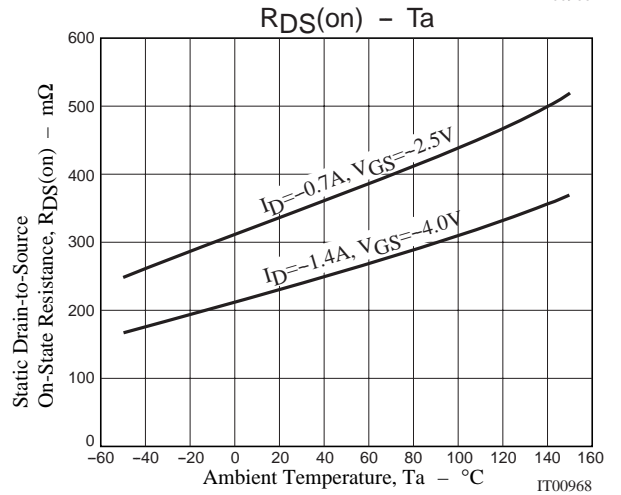
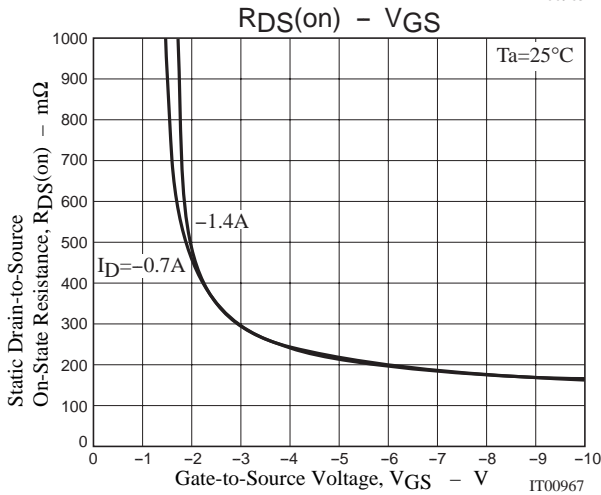
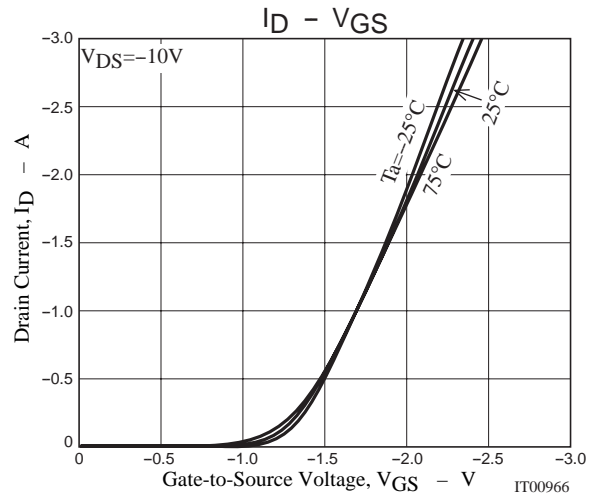
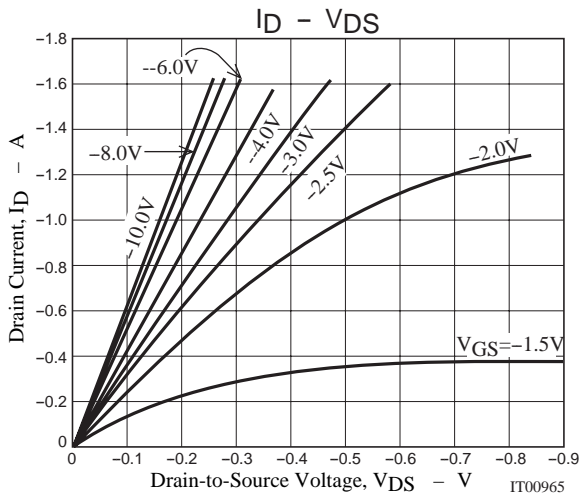
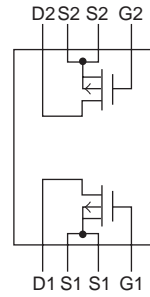
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See Specified Test Circuit		10		ns
Rise Time	$t_r$	See Specified Test Circuit		380		ns
Turn-OFF Delay Time	$t_{d(off)}$	See Specified Test Circuit		280		ns
Fall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

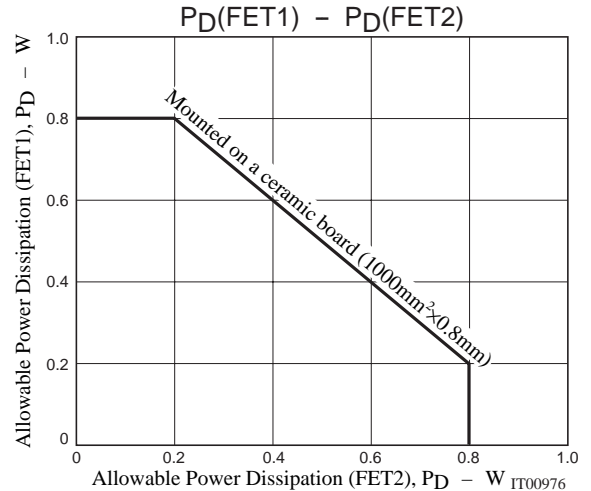
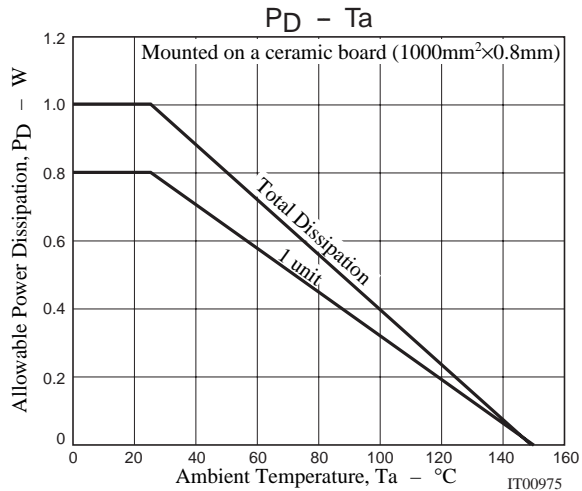
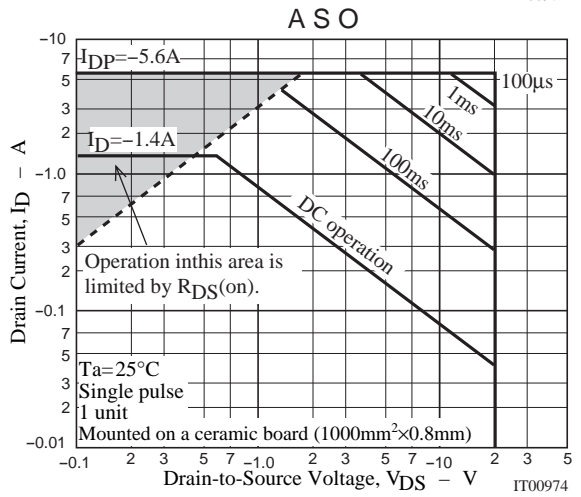
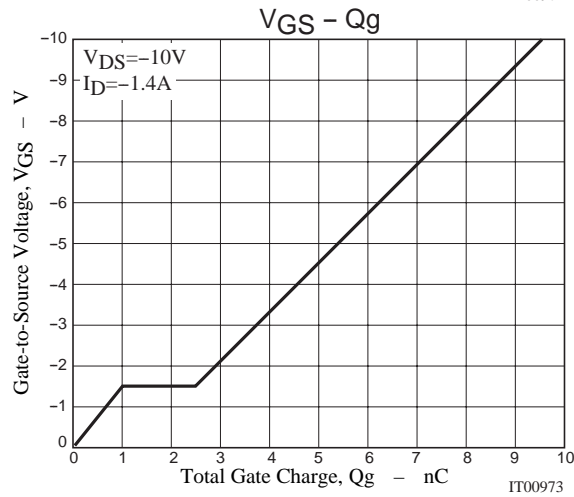
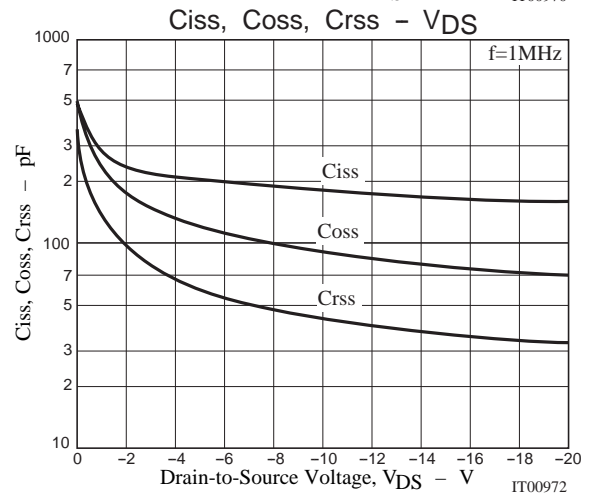
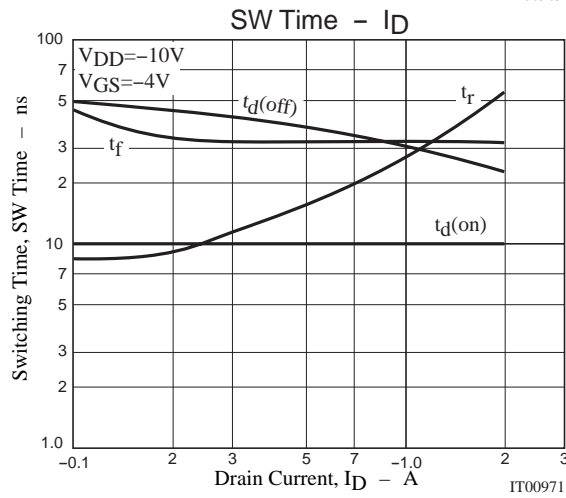
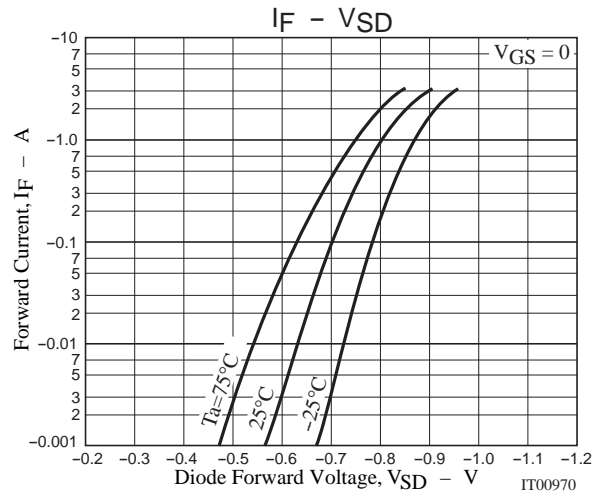
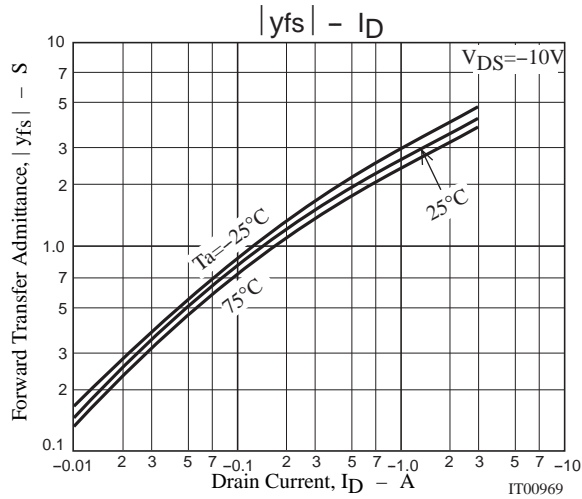
## Switching Time Test Circuit



## Electrical Connection



# FTD1003



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