



# FTD7011 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- 1.8V drive.
- Mount height 1.1mm.
- Coposite type, facilitating high-density mounting.

### Specifications

Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-12	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		-7	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-30	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (1000mm <sup>2</sup> ×0.8mm) 1unit	1.2	W
Total Dissipation	$P_T$	When mounted on ceramic substrate (1000mm <sup>2</sup> ×0.8mm)	1.3	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	$V_{(BR)DSS}$	$I_D = -1\text{mA}$ , $V_{GS} = 0\text{V}$	-12			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -8\text{V}$ , $V_{GS} = 0\text{V}$			-1	$\mu\text{A}$
		$V_{DS} = -12\text{V}$ , $V_{GS} = 0\text{V}$			-10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8\text{V}$ , $V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -6\text{V}$ , $I_D = -1\text{mA}$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -6\text{V}$ , $I_D = -6\text{A}$	10	18		S

Marking : D7011

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# FTD7011

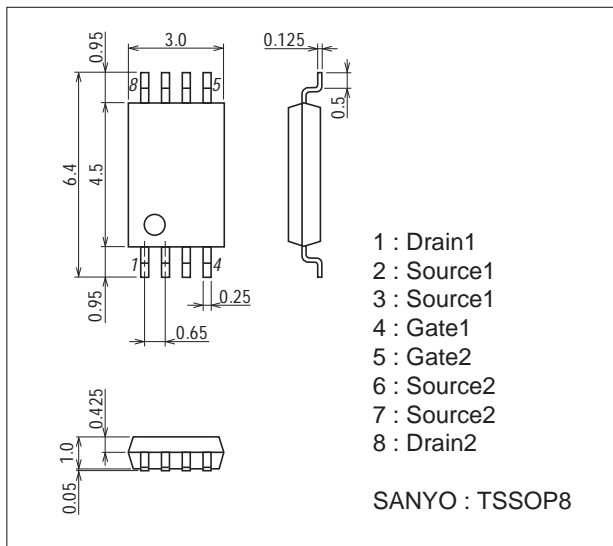
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -3A, V_{GS} = -4.5V$		14	19	$m\Omega$
	$R_{DS(on)2}$	$I_D = -1.5A, V_{GS} = -2.5V$		20	28	$m\Omega$
	$R_{DS(on)3}$	$I_D = -0.5A, V_{GS} = -1.8V$		32	56	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -6V, f = 1MHz$		1780		$\mu F$
Output Capacitance	$C_{oss}$	$V_{DS} = -6V, f = 1MHz$		540		$\mu F$
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -6V, f = 1MHz$		390		$\mu F$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		22		ns
Rise Time	$t_r$	See specified Test Circuit.		170		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		145		ns
Fall Time	$t_f$	See specified Test Circuit.		128		ns
Total Gate Charge	$Q_g$	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -7A$		18		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -7A$		2.8		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -7A$		4.9		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -7A, V_{GS} = 0V$		-0.78	-1.2	V

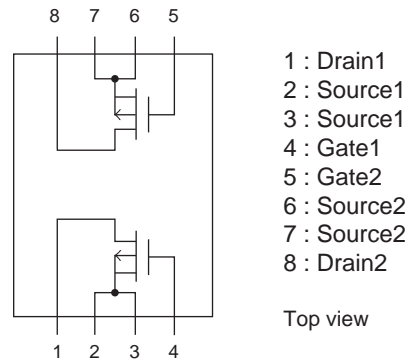
## Package Dimensions

unit : mm (typ)

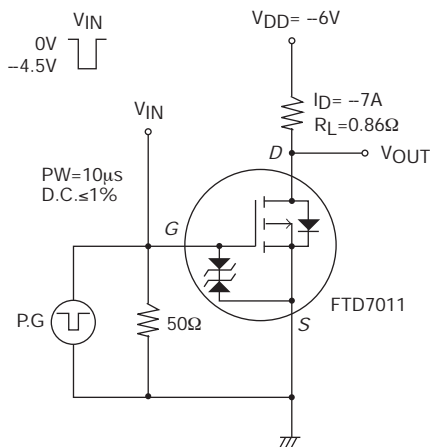
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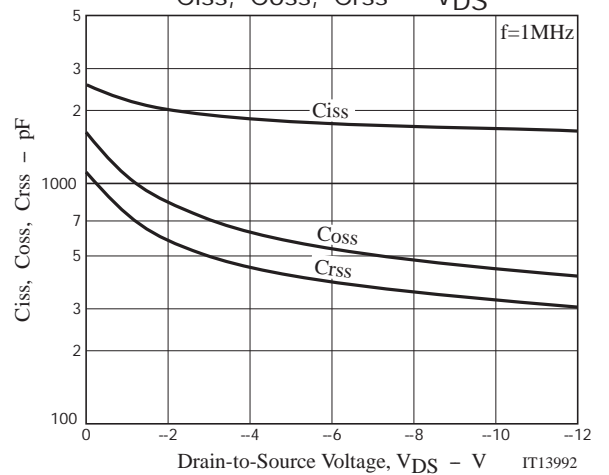
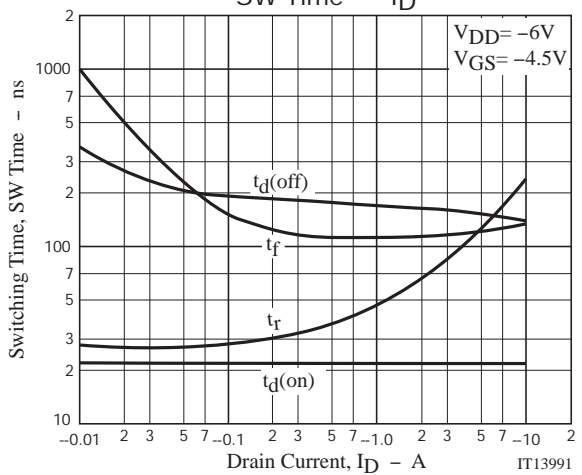
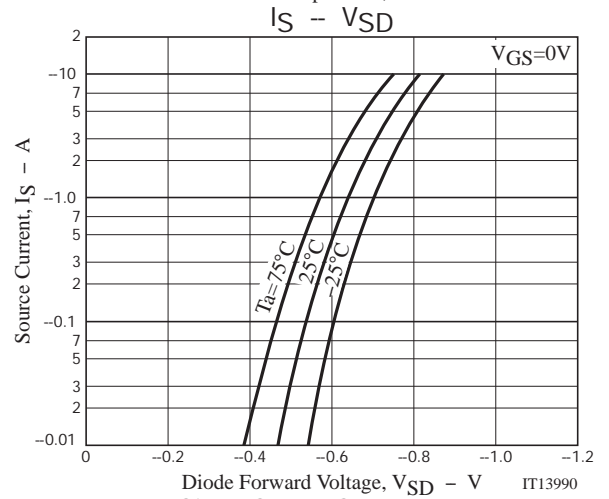
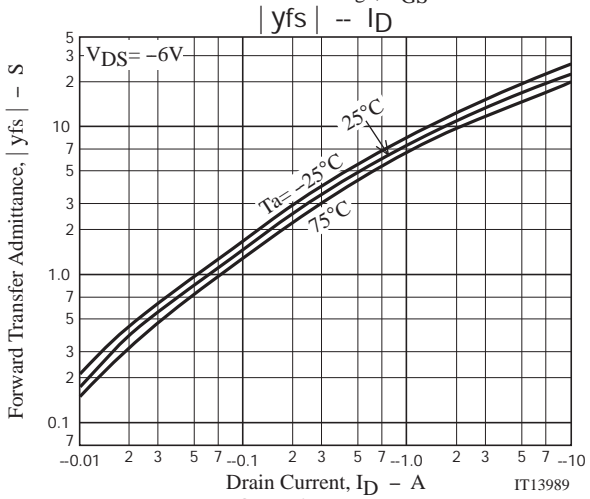
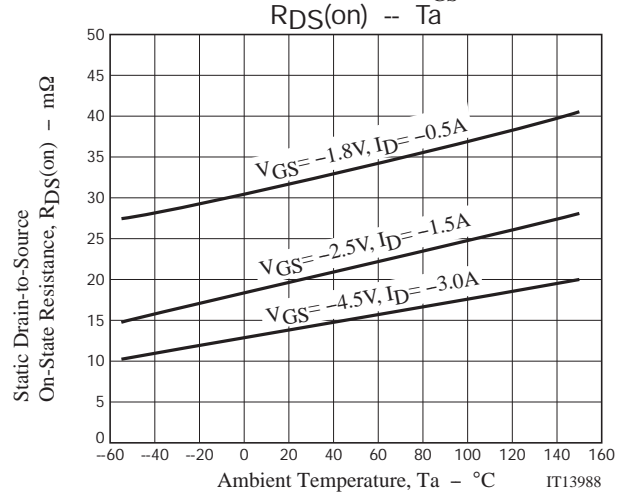
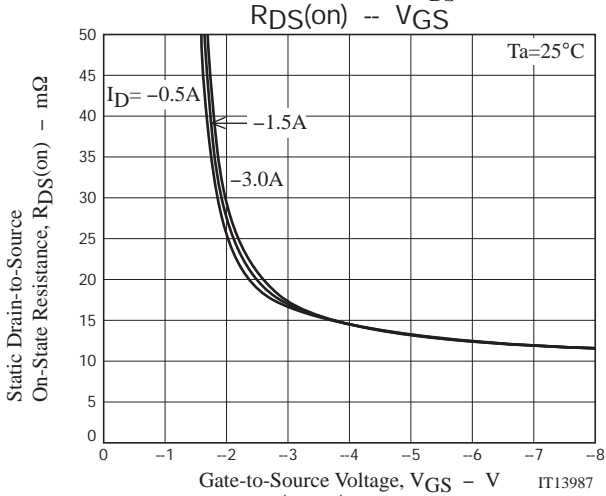
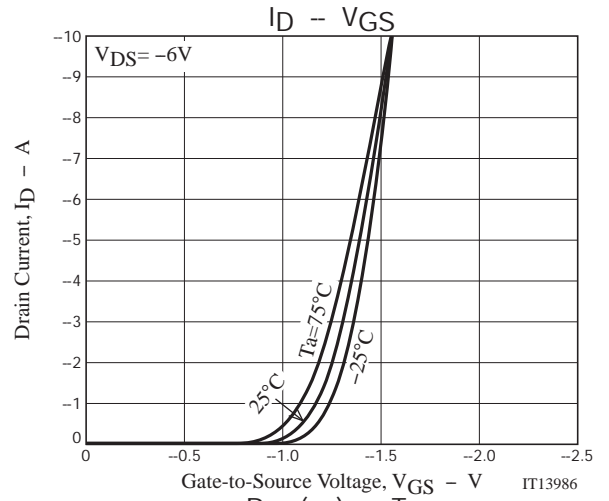
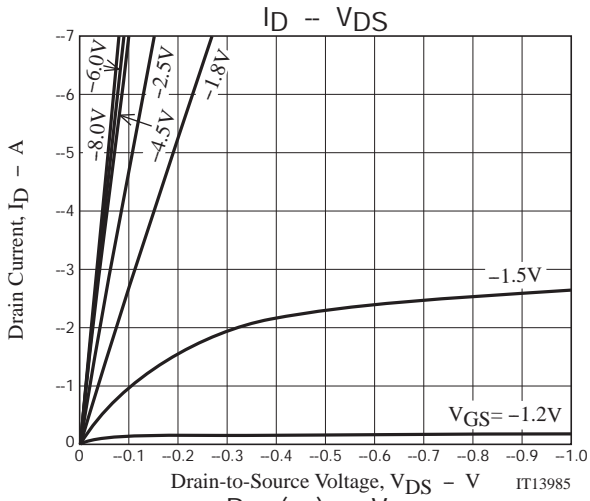


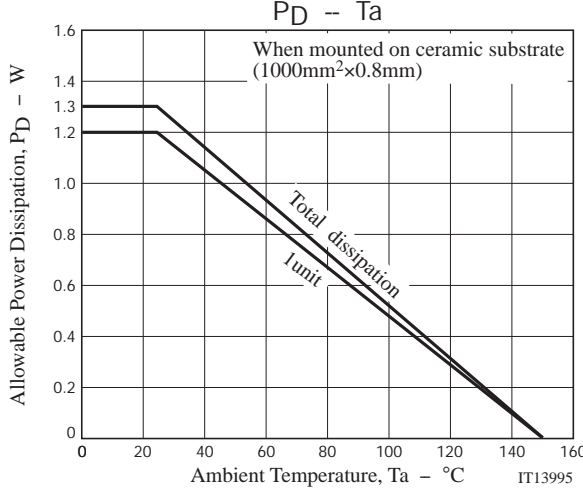
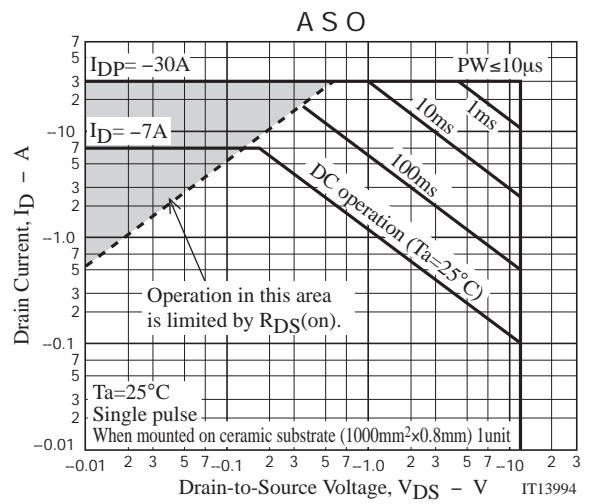
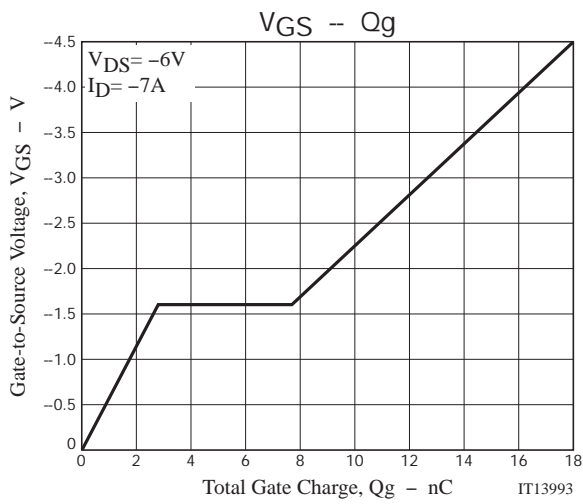
## Electrical Connection



## Switching Time Test Circuit







Note on usage : Since the FTD7011 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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