January 1990
Edition 1.1

FUJITSU

PRODUCT PROFILE

FT6122, FT6122D

Power MOS FET Arrays

Silicon N-channel Enhancement Mode Power MOS FET Arrays

ABSOLUTE MAXIMUM RATINGS

(Ta = 25°C)

Rating		Symbol	Condition	Value	Unit
Drain Source Voltage		V_{DSS}		120	V
Gate Source Voltage		V_{GS}		±20	V
Drain Current	Continuous	I_D	Tc = 25°C	4	A
	Pulsed	I_{DM}		8	A
Reverse Drain Current (Continuous)		I_{DR}		4	A
Fast Recovery Diode Forward Current		I_{FM}	$P_W \leqq 0.5$ ms, DR ≦ 25%	4	A
		I_{FSM}	$P_W \leqq 100$ ms, Single Pulse	8	A
Fast Recovery Diode Reverse Voltage		V_R		130	V
Total Drain Power Dissipation		P_T	Ta = 25°C, 4-MOSFET operation	4	W
		P_T	Tc = 25°C, 4-MOSFET operation	36	W
Thermal Resistance Junction to Case		$R_{th j\text{-}c}$	Tc = 25°C, 4-MOSFET operation	3.5	°C/W
Channel Temperature		T_{ch}		+150	°C
Storage Temperature		T_{stg}		−55 ~ +150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C) : for Single MOS FET

Parameter	Symbol	Test Condition		Limit Min.	Limit Typ.	Limit Max.	Unit
Drain to Source Breakdown Voltage	BV_{DSS}	I_D = 100 μA, V_{GS} = 0 V		120	–	–	V
Gate to Source Leakage Current	I_{GSS}	V_{GS} = ±20 V, V_{DS} = 0 V		–	–	100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 120 V, V_{GS} = 0 V		–	–	100	μA
Gate to Source Cutoff Voltage	$V_{GS(off)}$	I_D = 1 mA, V_{DS} = 10 V		0.9	1.3	1.7	V
Static Drain to Source On-State Resistance	$R_{DS(on)}$	I_D = 3 A, V_{GS} = 4 V	*	–	0.32	0.5	Ω
	$R_{DS(on)}$	I_D = 3 A, V_{GS} = 10 V	*	–	0.25	0.4	Ω
Forward Transconductance	g_{fs}	I_D = 3 A, V_{DS} = 10 V	*	2.5	4.5	–	S
Input Capacitance	C_{iss}	V_{DS} = 25 V		–	450	550	pF
Output Capacitance	C_{oss}	V_{GS} = 0 V		–	140	210	pF
Reverse Transfer Capacitance	C_{rss}	f = 1 MHz		–	60	90	pF
Turn-On Delay Time	$t_{d(on)}$	I_D = 3 A (See Test Circuit)		–	25	–	ns
Rise Time	t_r	V_{DD} = 60 V		–	30	–	ns
Turn-Off Delay Time	$t_{d(off)}$	V_{GS} = 10 V		–	75	–	ns
Fall Time	t_f	R_{GS} = 50 Ω		–	35	–	ns

* Pulsed : Pulse Width ≦ 300 μs, D.R. ≦ 6%

SOURCE-DRAIN DIODE CHARACTERISTICS : for Single MOS FET

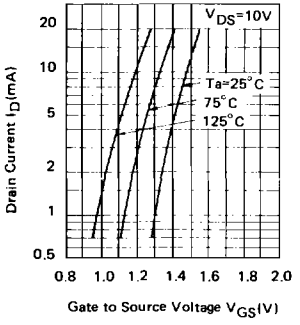
Forward On-Voltage	V_{SD}	I_{DR} = 3 A, V_{GS} = 0 V	–	1.0	1.2	V
Reverse Recovery Time	t_{rr}	I_{DR} = 3 A, dI_{DR}/dt = 100 A/μs	–	140	–	ns

FAST RECOVERY DIODE CHARACTERISTICS : for Single Diode (FT6122D only)

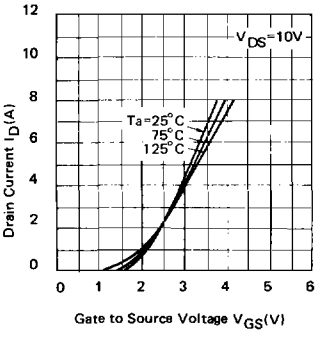
Forward Voltage	V_F	I_F = 1 A	–	–	1.0	V
Reverse Current	I_R	V_R = 120 V	–	–	10	μA
Reverse Voltage	V_R	I_R = 15 μA	130	–	–	V

4

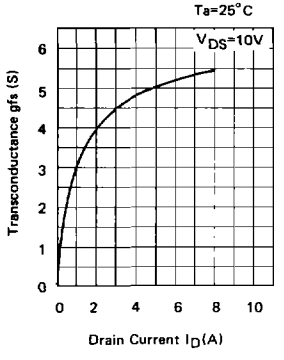
Threshhold Region



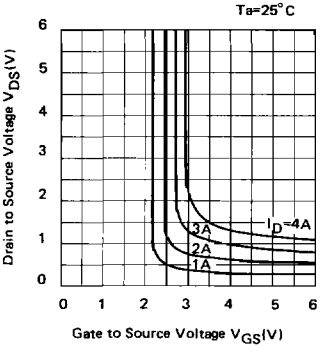
Transfer Characteristics



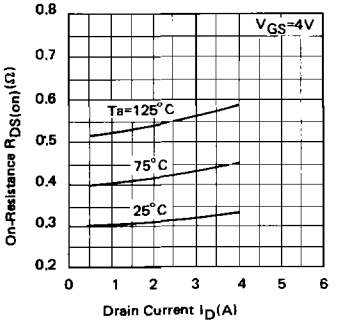
Transconductance-Drain Current



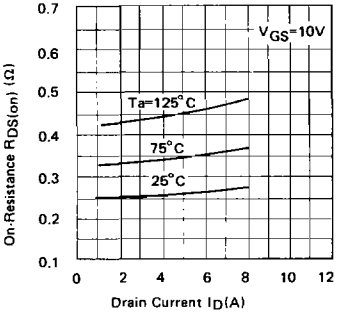
Drain to Source Saturation Region



On-Resistance — Drain Current

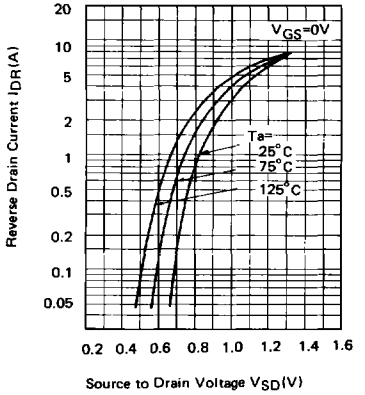


On-Resistance-Drain Current

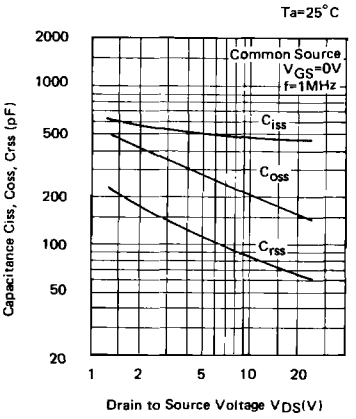


4

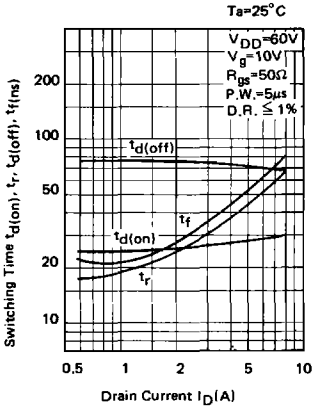
Source-Drain Diode Forward Voltage



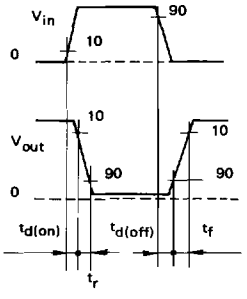
Capacitance-Drain to Source Voltage



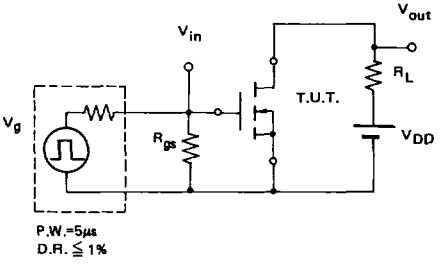
Switching Time – Drain Current



Switching Waveform

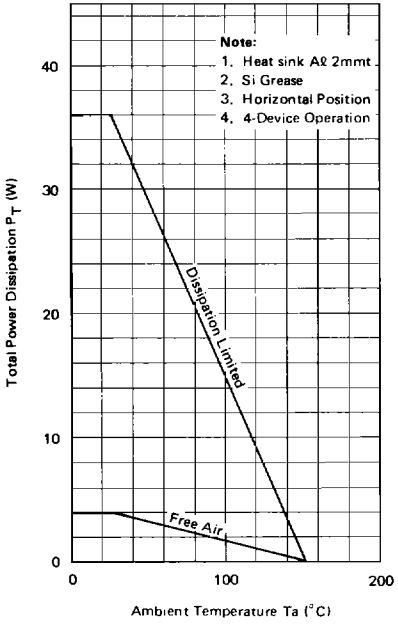


Test Circuit for Switching Time

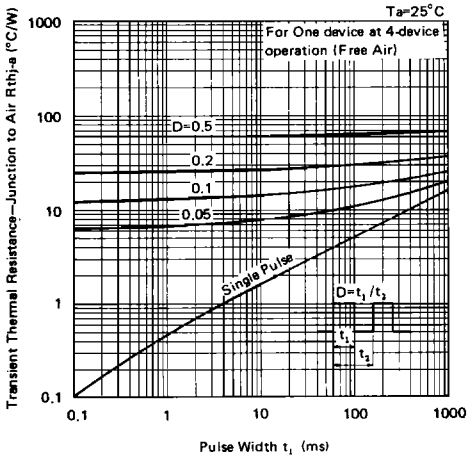


4

Power Dissipation Derating



Maximum Transient Thermal Resistance



4