

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	I _D	T _c = 25°C	4	A
	I _{DM}		8	A
Reverse Drain Current (Continuous)	I _{DR}		4	A
Fast Recovery Diode Forward Current	I _{FM}	P _W ≤ 0.5 ms, DR ≤ 25%	4	A
	I _{FSM}	P _W ≤ 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 _{thj-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			Unit
			Min.	Typ.	Max.	
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

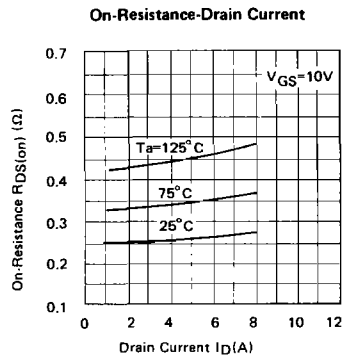
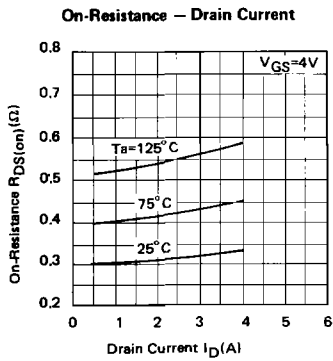
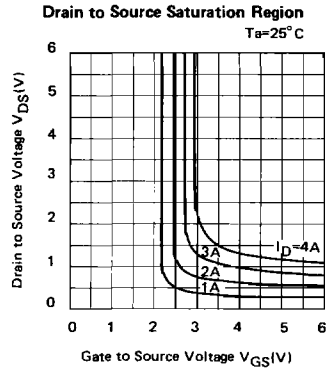
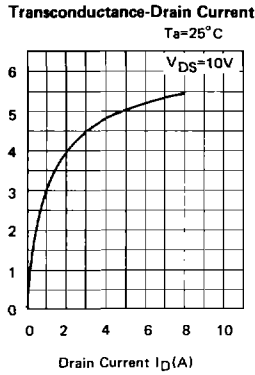
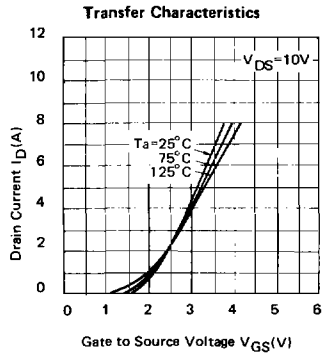
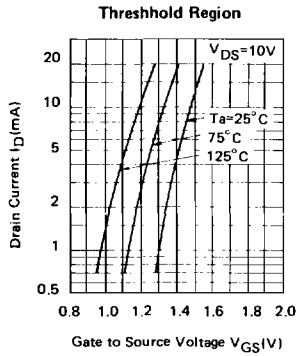
* Pulsed : Pulse Width ≤ 300 μs, D.R. ≤ 6%

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

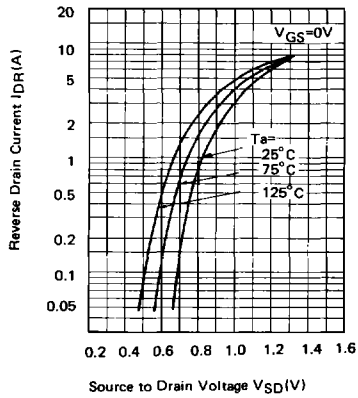
FAST RECOVERY DIODE CHARACTERISTICS : for Single Diode (FT6122D only)

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

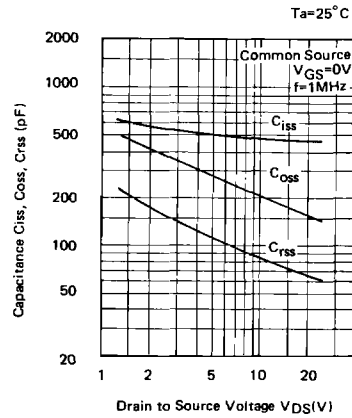


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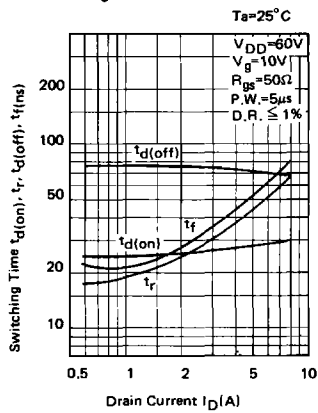
Source-Drain Diode Forward Voltage



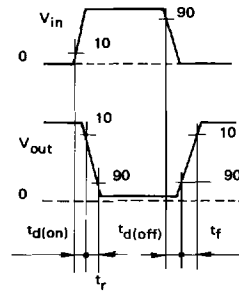
Capacitance-Drain to Source Voltage



Switching Time – Drain Current

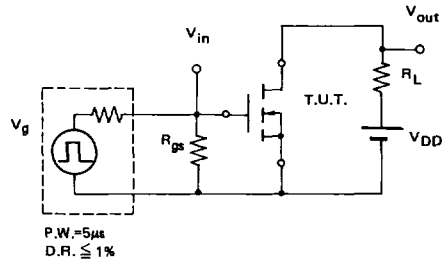


Switching Waveform



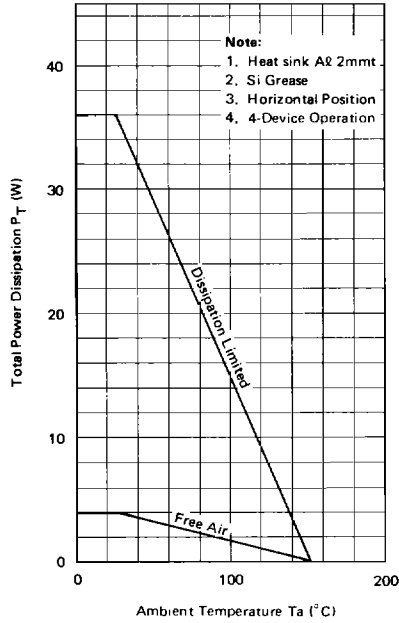
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Test Circuit for Switching Time



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Power Dissipation Derating



Maximum Transient Thermal Resistance

