

MOS FIELD EFFECT TRANSISTOR

2SJ207

P-CHANNEL MOS FET FOR SWITCHING

DESCRIPTION

The 2SJ207, P-channel vertical type MOS FET, is a switching device which can be driven by 2.5 V power supply.

As the MOS FET is driven by low voltage and does not require consideration of driving current, it is suitable for appliances including VCR cameras and headphone stereos which need power saving.

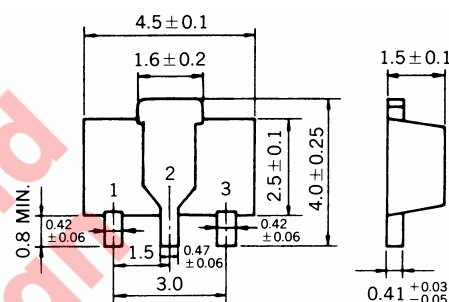
FEATURES

- Directly driven by ICs having a 3 V power supply.
- Not necessary to consider driving current because of its high input impedance.
- Possible to reduce the number of parts by omitting the bias resistor.
- Has low on-state resistance

$$R_{DS(on)} = 4.0 \, \Omega \text{ MAX.} \quad V_{GS} = -2.5 \text{ V}, I_D = -30 \text{ mA}$$

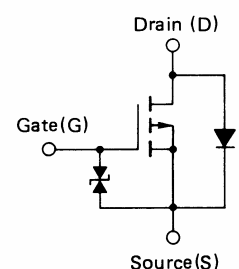
$$R_{bS(on)} = 1.5 \, \Omega \text{ MAX.} \quad V_{GS} = -4.0 \text{ V}, I_D = -500 \text{ mA}$$

PACKAGE DRAWING (Unit: mm)



1. Source
2. Drain
3. Gate

MARK : PE



(Diode in the figure is the parasitic diode.)

<R> ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Drain to Source Voltage ($V_{GS} = 0 \text{ V}$)	V_{DS}	-16	V
Gate to Source Voltage ($V_{DS} = 0 \text{ V}$)	V_{GS}	± 16	V
Drain Current (DC)	$I_{D(DC)}$	± 1.0	A
Drain Current (pulse) ^{Note 1}	$I_{D(pulse)}$	± 2.0	A
Total Power Dissipation ^{Note 2}	P_T	2.0	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes 1. $PW \leq 10 \text{ ms}$, Duty Cycle $\leq 50\%$

2. When using ceramic board of $16 \text{ cm}^2 \times 0.7 \text{ mm}$

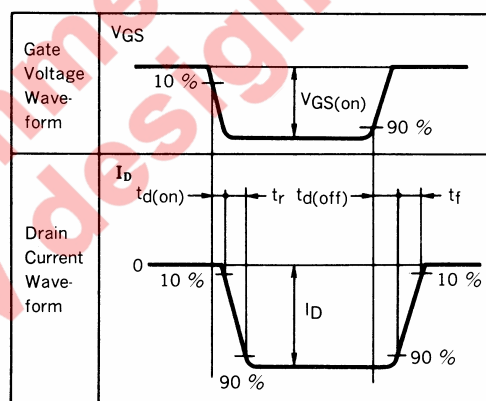
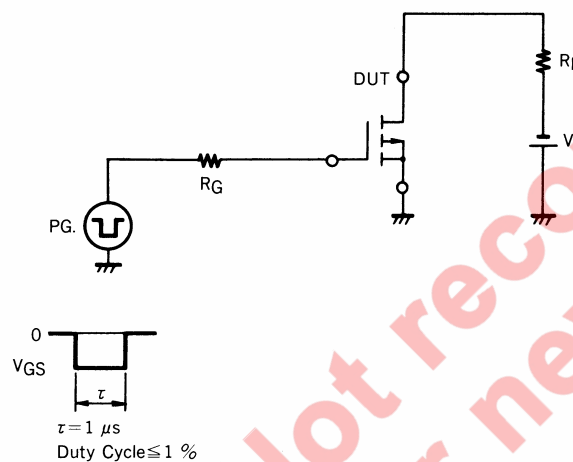
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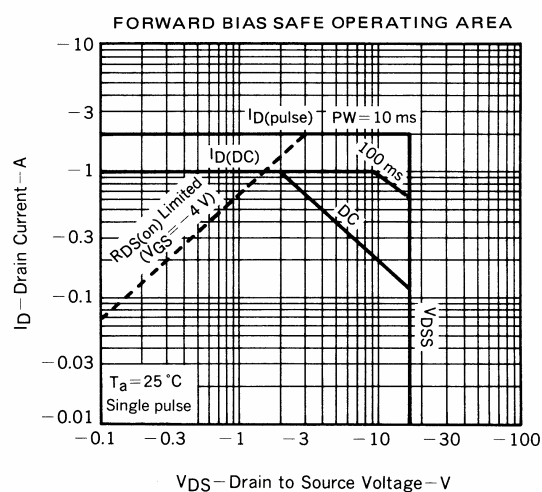
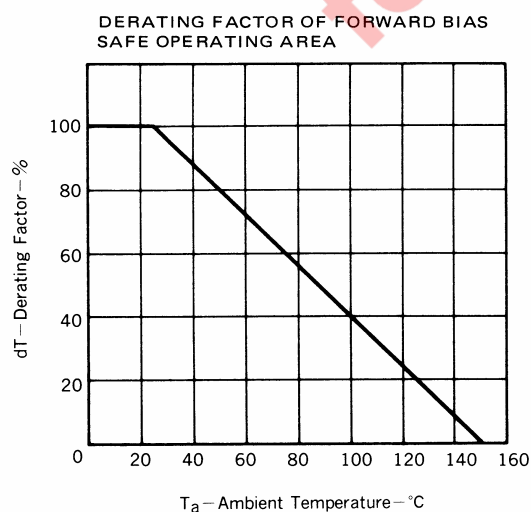
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

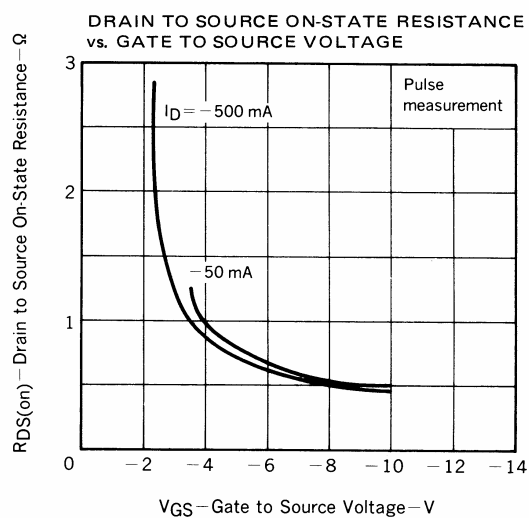
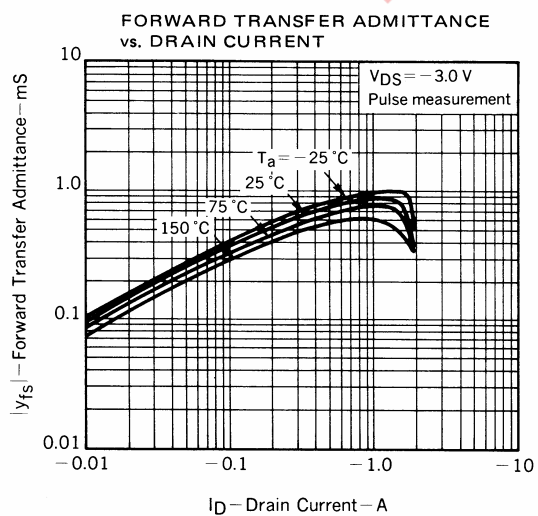
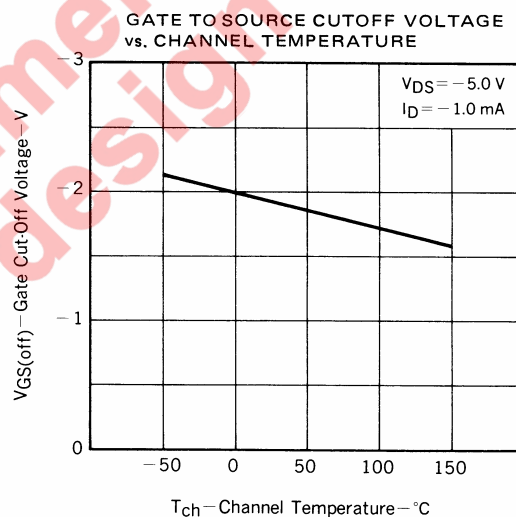
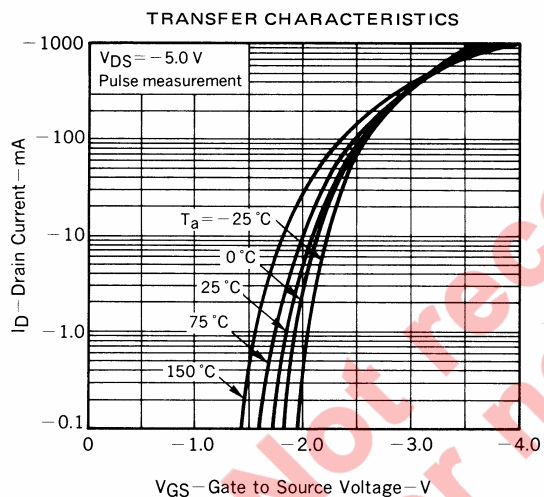
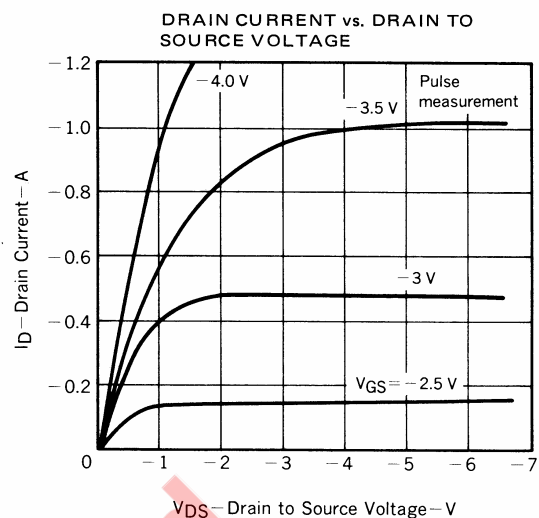
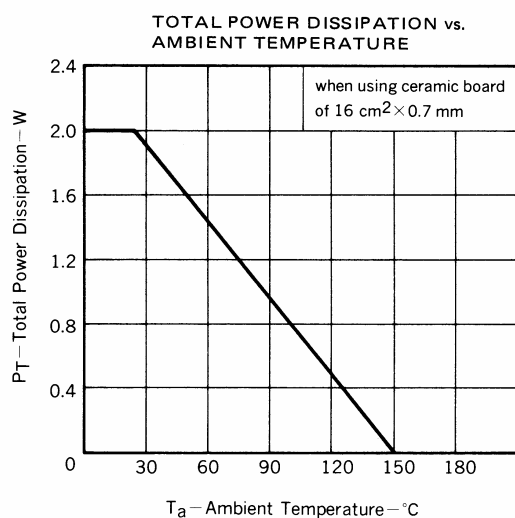
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Cut-off Current	I_{DSS}			-1.0	μA	$V_{DS} = -16\text{ V}, V_{GS} = 0$
Gate Leakage Current	I_{GSS}			± 5.0	μA	$V_{GS} = \pm 16\text{ V}, V_{DS} = 0$
Gate Cut-off Voltage	$V_{GS(off)}$	-1.4	-1.9	-2.4	V	$V_{DS} = -5\text{ V}, I_D = -1\text{ mA}$
Forward Transfer Admittance	$ y_{fs} $	0.4	0.7		S	$V_{DS} = -3\text{ V}, I_D = -500\text{ mA}$
Drain to Source On-State Resistance	$R_{DS(on)1}$		2.6	4.0	Ω	$V_{GS} = -2.5\text{ V}, I_D = -30\text{ mA}$
Drain to Source On-State Resistance	$R_{DS(on)2}$		0.9	1.5	Ω	$V_{GS} = -4.0\text{ V}, I_D = -500\text{ mA}$
Input Capacitance	C_{iss}		180		pF	$V_{DS} = -3.0\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$
Output Capacitance	C_{oss}		160		pF	
Feedback Capacitance	C_{rss}		50		pF	$V_{GS(on)} = -3\text{ V}, R_G = 10\ \Omega, V_{DD} = -3\text{ V}, I_D = -100\text{ mA}$
Turn-On Delay Time	$t_{d(on)}$		180		ns	
Rise Time	t_r		500		ns	
Turn-Off Delay Time	$t_{d(off)}$		130		ns	
Fall Time	t_f		240		ns	

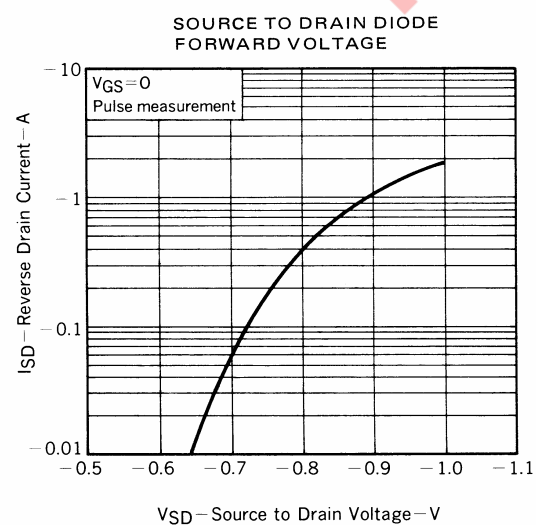
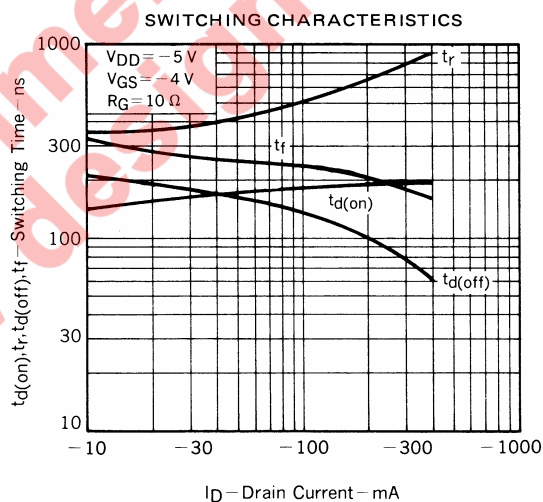
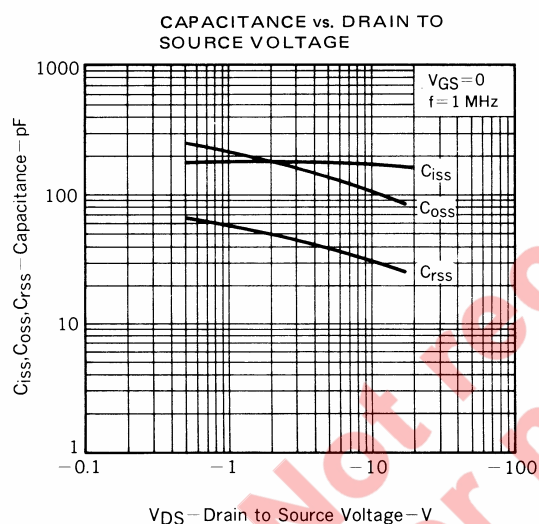
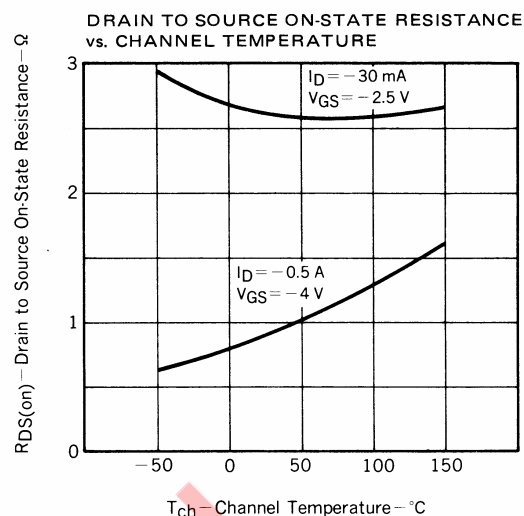
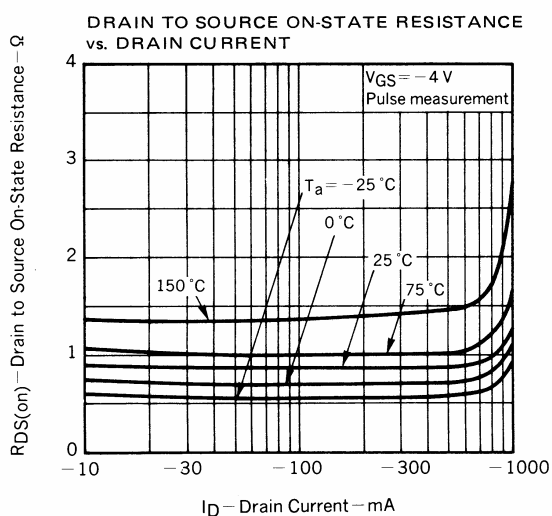
SWITCHING TIME MEASUREMENT CIRCUIT AND CONDITIONS



<R> TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)







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