NEC

MOS FIELD EFFECT TRANSISTOR
2SJ185

P-CHANNEL MOSFET
FOR SWITCHING

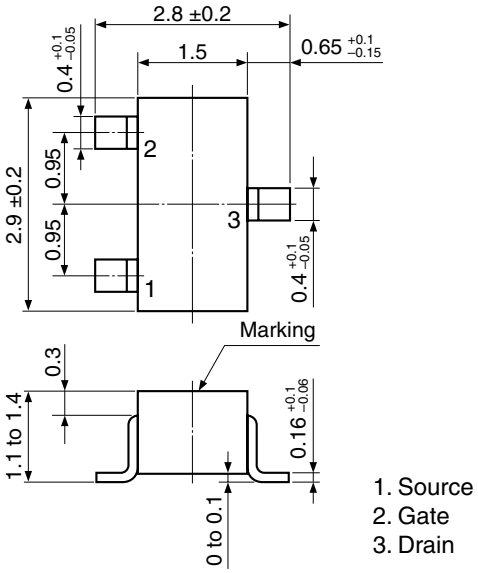
The 2SJ185 is a P-channel vertical type MOSFET which can be driven by 2.5 V power supply.

The 2SJ185 is driven by low voltage and does not require consideration of driving current, it is suitable for appliances including VTR 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.
- Complementary to 2SK1399

PACKAGE DRAWING (Unit: mm)



1. Source
2. Gate
3. Drain

<R> **ORDERING INFORMATION**

PART NUMBER	PACKAGE
2SJ185	SC-59 (Mini Mold)

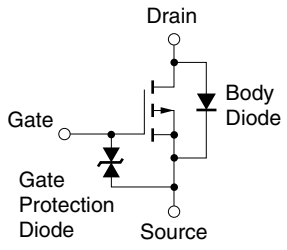
Marking: H12

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Drain to Source Voltage (V_{GS} = 0 V)	V_{DSS}	–50	V
Gate to Source Voltage (V_{DS} = 0 V)	V_{GSS}	∓7.0	V
Drain Current (DC)	$I_{D(DC)}$	∓100	mA
Drain Current (pulse) **Note**	$I_{D(pulse)}$	∓200	mA
Total Power Dissipation	P_T	200	mW
Storage Temperature	T_{stg}	–55 to +150	°C

Note PW ≤ 10 ms, Duty Cycle ≤ 50%

EQUIVALENT CIRCUIT



<R> **Remark** The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

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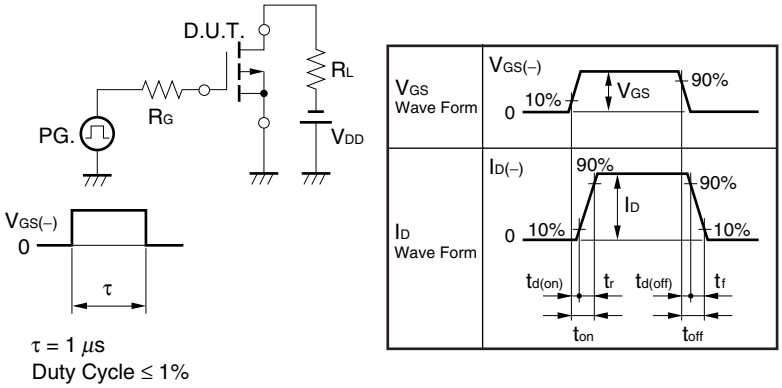
The mark <R> shows major revised points.
The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = –50 V, V_{GS} = 0 V			–10	μA
Gate Leakage Current	I_{GSS}	V_{GS} = ∓7.0 V, V_{DS} = 0 V			∓5	μA
Gate Cut-off Voltage	$V_{GS(off)}$	V_{DS} = –3.0 V, I_D = –1 μA	–1.2	–1.6	–2.0	V
Forward Transfer Admittance **Note**	$\|y_{fs}\|$	V_{DS} = –3.0 V, I_D = –10 mA	20	42		mS
Drain to Source On-state Resistance **Note**	$R_{DS(on)1}$	V_{GS} = –2.5 V, I_D = –1 mA		25	40	Ω
	$R_{DS(on)2}$	V_{GS} = –4.0 V, I_D = –10 mA		13	20	Ω
Input Capacitance	C_{iss}	V_{DS} = –3.0 V		22		pF
Output Capacitance	C_{oss}	V_{GS} = 0 V		12		pF
Reverse Transfer Capacitance	C_{rss}	f = 1 MHz		4		pF
Turn-on Delay Time	$t_{d(on)}$	V_{GS} = –3.0 V, R_G = 10 Ω		80		ns
Rise Time	t_r	V_{DD} = –3.0 V		230		ns
Turn-off Delay Time	$t_{d(off)}$	I_D = –20 mA		40		ns
Fall Time	t_f			70		ns

<R> **Note** Pulsed

TEST CIRCUIT SWITCHING TIME

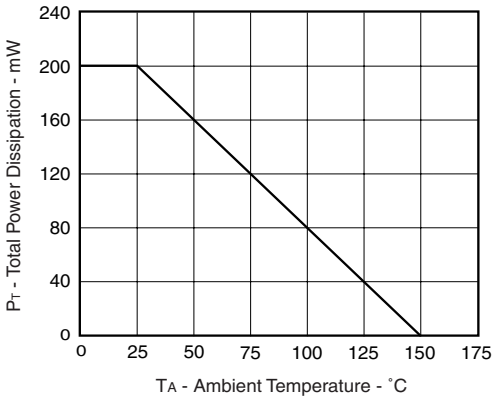


τ = 1 μs
Duty Cycle ≤ 1%

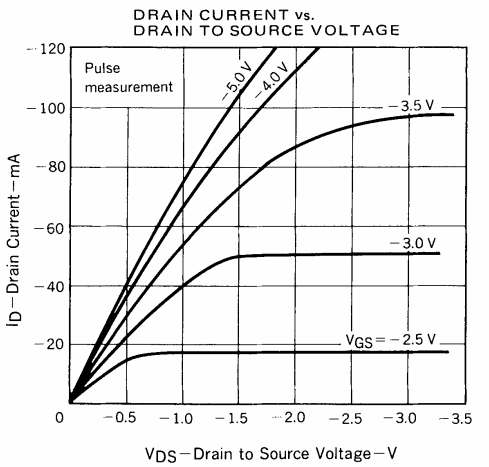
TYPICAL CHARACTERISTICS (T_A = 25°C)

<R>

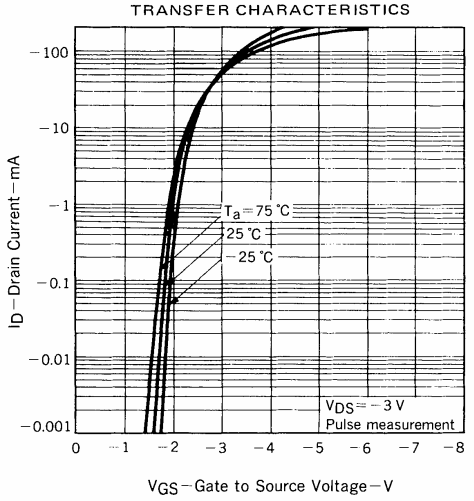
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



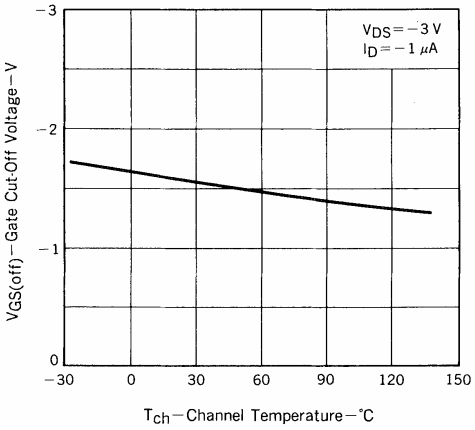
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



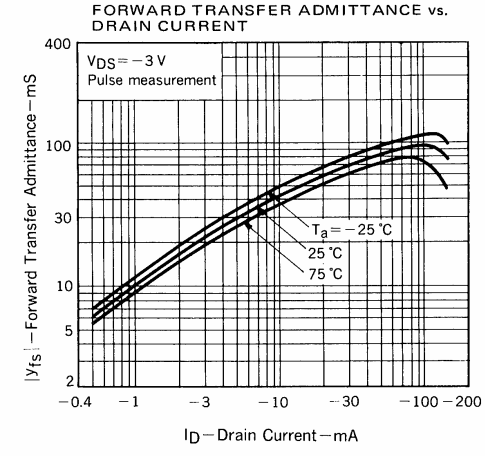
TRANSFER CHARACTERISTICS



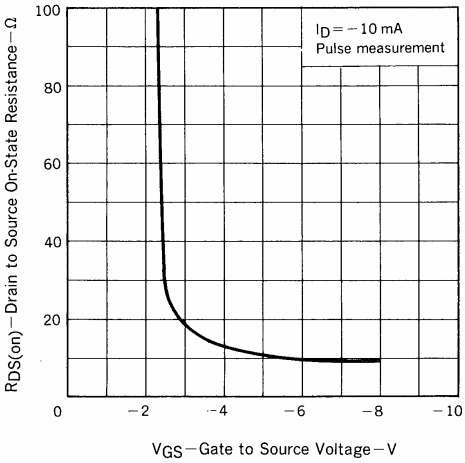
GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



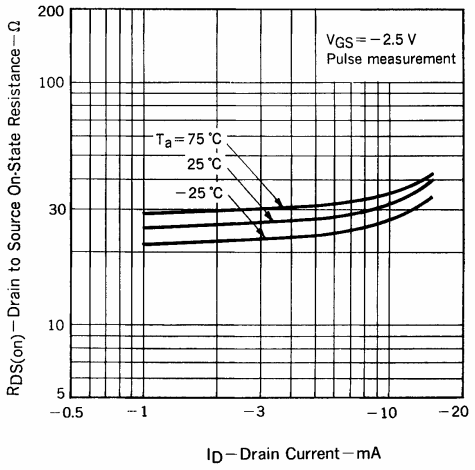
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



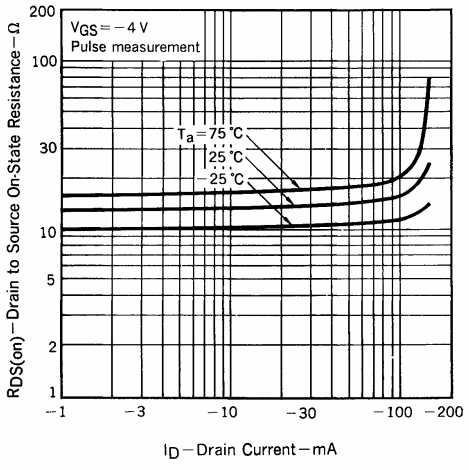
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



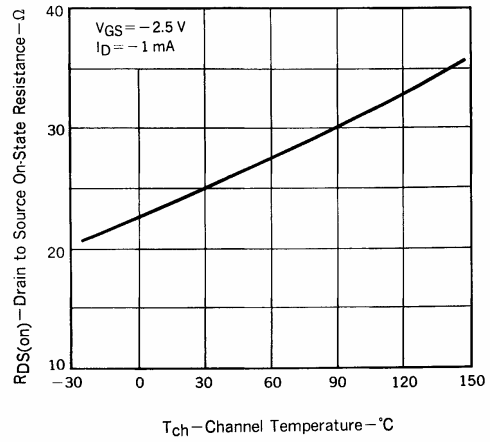
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



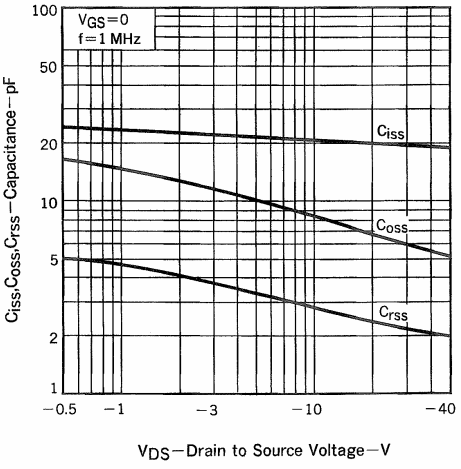
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



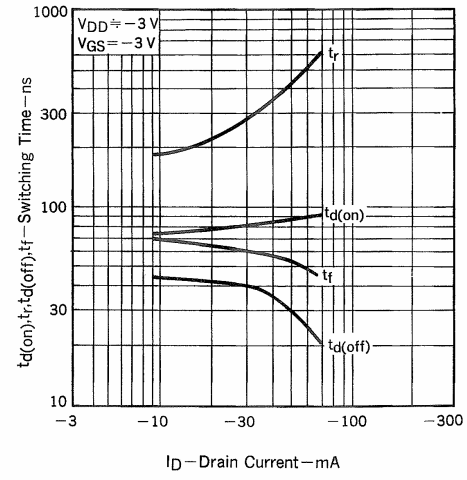
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



SWITCHING CHARACTERISTICS



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