

# MOS FIELD EFFECT TRANSISTOR

# 2SJ243

## P-CHANNEL MOS FET

## FOR SWITCHING

### DESCRIPTION

The 2SJ243 is a P-channel vertical type MOS FET that is driven at 2.5 V.

Because this MOS FET can be driven on a low voltage and because it is not necessary to consider the drive current, the 2SJ243 is ideal for driving the actuator of power-saving systems, such as VCR cameras and headphone stereo systems.

Moreover, the 2SJ243 is housed in a super small mini-mold package so that it can help increase the mounting density on the printed circuit board and lower the mounting cost, contributing to miniaturization of the application systems.

### FEATURES

- Small mounting area: about 60% of the conventional mini-mold package (SC-70)
- Can be directly driven by 3-V IC
- Can be automatically mounted

### ★ ORDERING INFORMATION

PART NUMBER	PACKAGE
2SJ243	SC-75 (USM)

Marking: A1

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

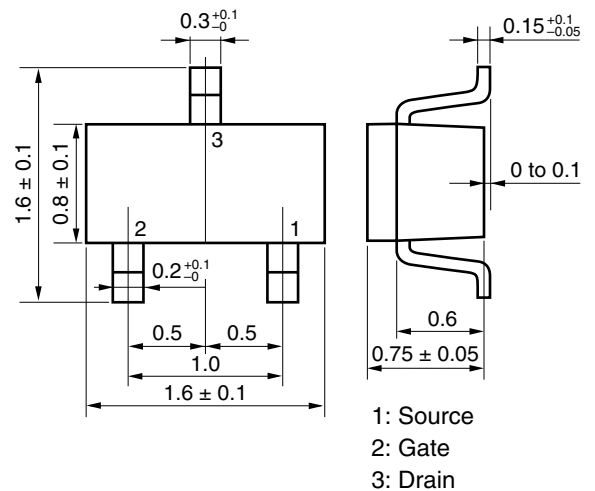
Drain to Source Voltage (V <sub>GS</sub> = 0 V)	V <sub>DSS</sub>	-30	V
Gate to Source Voltage (V <sub>DS</sub> = 0 V)	V <sub>GSS</sub>	± 7.0	V
Drain Current (DC)	I <sub>D(DC)</sub>	± 100	mA
Drain Current (pulse) <sup>Note1</sup>	I <sub>D(pulse)</sub>	± 200	mA
Total Power Dissipation <sup>Note2</sup>	P <sub>T</sub>	200	mW
Channel Temperature	T <sub>ch</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

**Notes** 1. PW ≤ 10 ms, Duty Cycle ≤ 50%

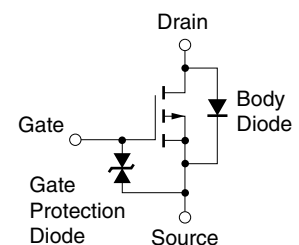
2. Mounted on ceramic substrate of 3.0 cm<sup>2</sup> x 0.64 mm

**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.

### ★ PACKAGE DRAWING (Unit: mm)



### EQUIVALENT CIRCUIT



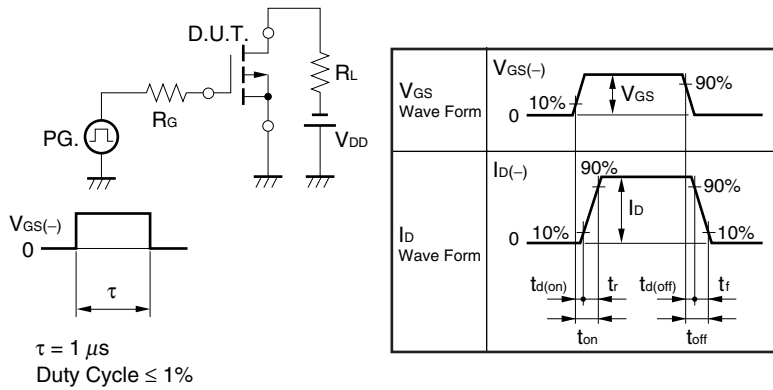
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**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)**

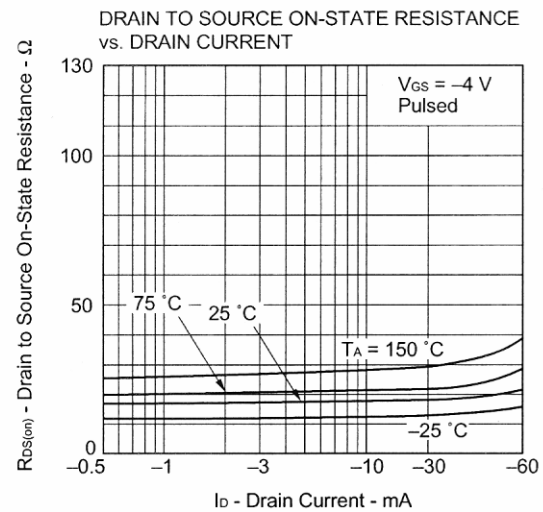
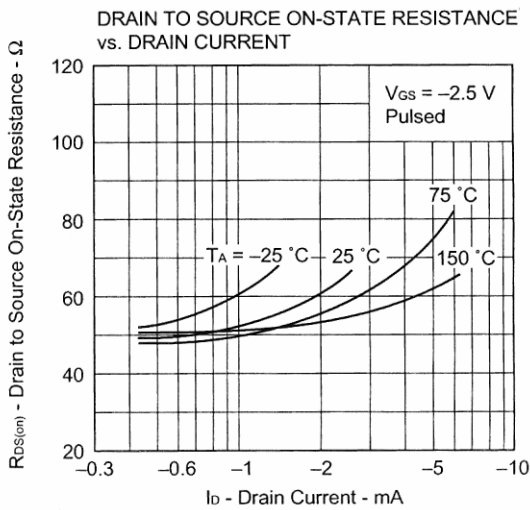
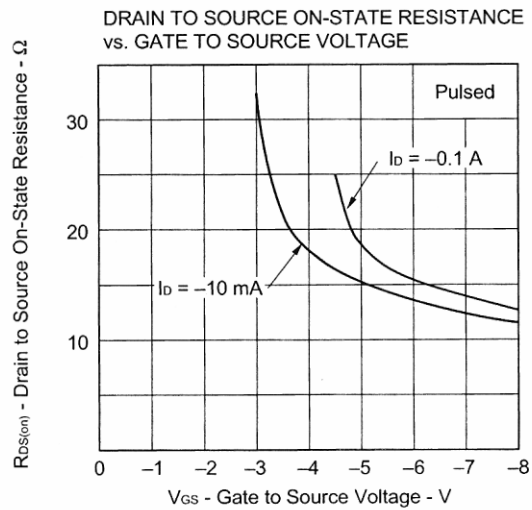
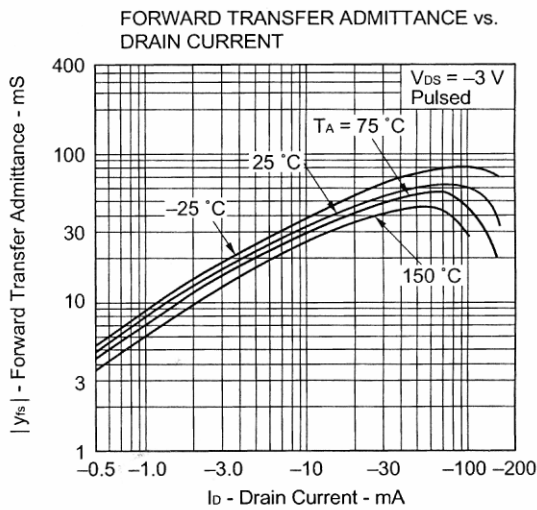
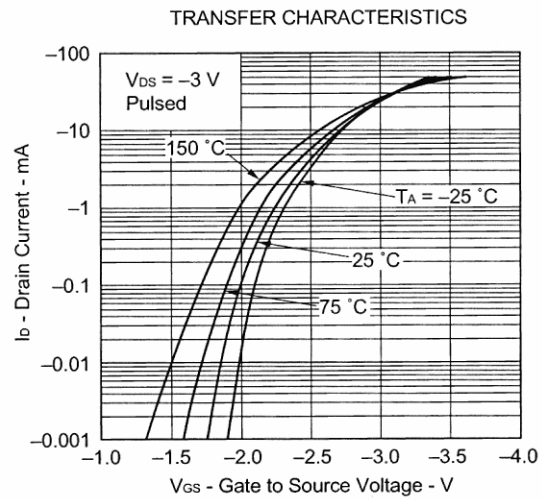
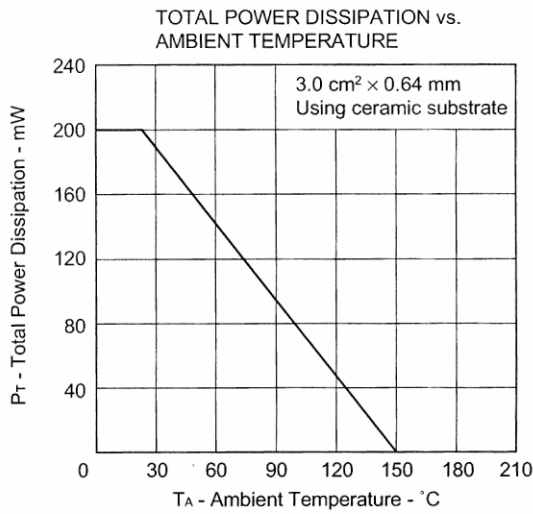
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -30 V, V <sub>GS</sub> = 0 V			-1.0	μA
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ± 5.0 V, V <sub>DS</sub> = 0 V		± 0.1	± 3.0	μA
Gate Cut-off Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = -3.0 V, I <sub>D</sub> = -10 μA	-1.6	-1.9	-2.3	V
Forward Transfer Admittance <sup>Note</sup>	y <sub>fs</sub>	V <sub>DS</sub> = -3.0 V, I <sub>D</sub> = -10 mA	20	30		mS
Drain to Source On-state Resistance <sup>Note</sup>	R <sub>DS(on)1</sub>	V <sub>GS</sub> = -2.5 V, I <sub>D</sub> = -1.0 mA		55	100	Ω
	R <sub>DS(on)2</sub>	V <sub>GS</sub> = -4.0 V, I <sub>D</sub> = -10 mA		20	25	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -5.0 V		16		pF
Output Capacitance	C <sub>oss</sub>	V <sub>GS</sub> = 0 V		13		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	f = 1 MHz		2.0		pF
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -5.0 V, I <sub>D</sub> = -10 mA		10		ns
Rise Time	t <sub>r</sub>	V <sub>GS</sub> = -5.0 V		40		ns
Turn-off Delay Time	t <sub>d(off)</sub>	R <sub>G</sub> = 10 Ω		130		ns
Fall Time	t <sub>f</sub>			80		ns

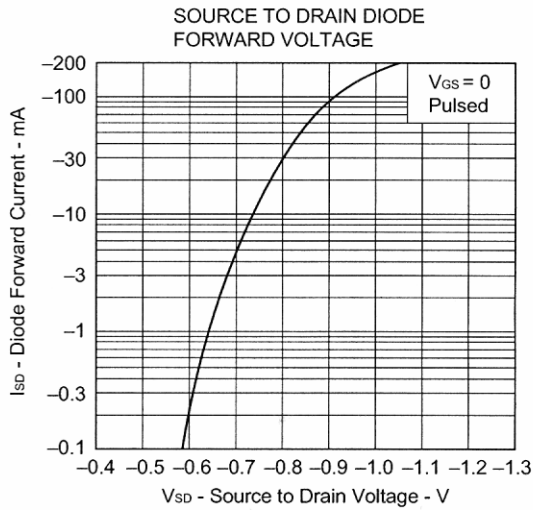
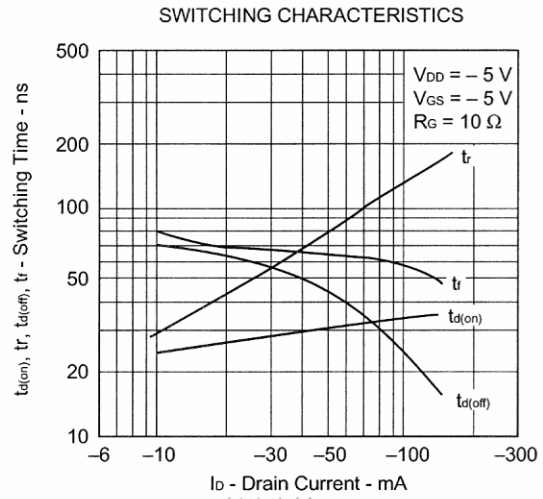
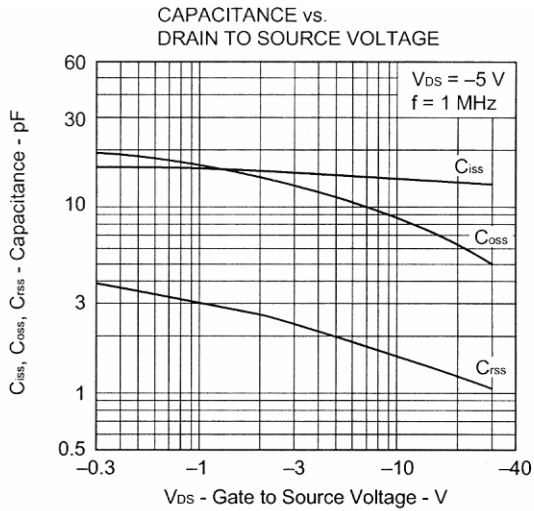
**Note** Pulsed: PW ≤ 350 μs, Duty Cycle 2%

★ **TEST CIRCUIT SWITCHING TIME**



TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)





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