

MOS FIELD EFFECT TRANSISTOR

2SJ463A

P-CHANNEL MOS FIELD EFFECT TRANSISTOR FOR HIGH SPEED SWITCHING

DESCRIPTION

The 2SJ463A is a switching device which can be driven directly by a 2.5 V power source.

The 2SJ463A has excellent switching characteristics, and is suitable for use as a high-speed switching device in digital circuits.

FEATURES

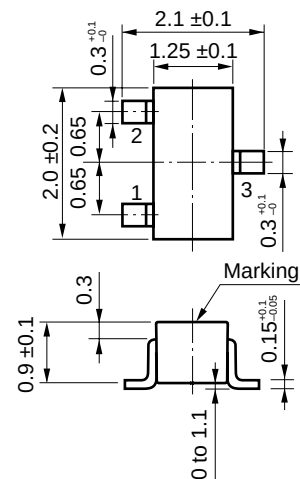
- Can be driven by a 2.5 V power source.
- Low Gate Cut-off Voltage.

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

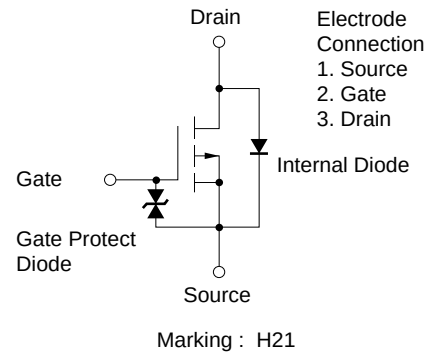
Drain to Source Voltage	V_{DS}	-30	V
Gate to Source Voltage	V_{GS}	∓ 20	V
Drain Current (DC)	$I_{D(DC)}$	∓ 0.1	A
Drain Current (pulse)	$I_{D(pulse)}$	∓ 0.4 Note	A
Total Power Dissipation	P_T	150	mW
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note $PW \leq 10 \mu\text{s}$, Duty Cycle $\leq 1\%$

Package Drawings (unit: mm)



Equivalent Circuit

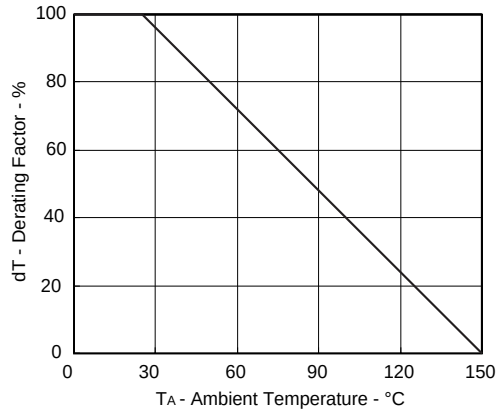


The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device is actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

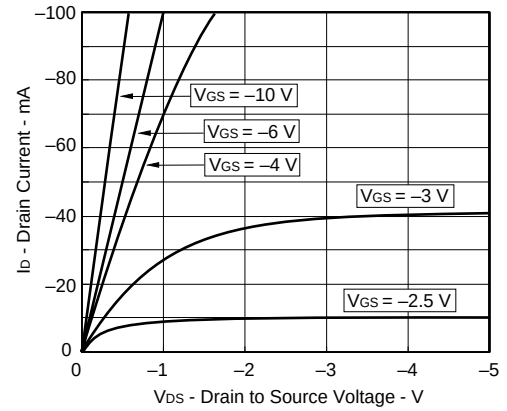
ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Cut-off Current	I_{DSS}			-1	μA	$V_{DS} = -30\text{ V}$, $V_{GS} = 0$
Gate Leakage Current	I_{GSS}			± 10	μA	$V_{GS} = \pm 20\text{ V}$, $V_{DS} = 0$
Gate Cut-off Voltage	$V_{GS(off)}$	-1.0	-1.4	-1.7	V	$V_{DS} = -3\text{ V}$, $I_D = -10\text{ }\mu\text{A}$
Forward Transfer Admittance	$ y_{fs} $	20			mS	$V_{DS} = -3\text{ V}$, $I_D = -10\text{ mA}$
Drain to Source On-State Resistance	$R_{DS(on)1}$		23	60	Ω	$V_{GS} = -2.5\text{ V}$, $I_D = -1\text{ mA}$
Drain to Source On-State Resistance	$R_{DS(on)2}$		11	23	Ω	$V_{GS} = -4\text{ V}$, $I_D = -10\text{ mA}$
Drain to Source On-State Resistance	$R_{DS(on)3}$		6	13	Ω	$V_{GS} = -10\text{ V}$, $I_D = -10\text{ mA}$
Input Capacitance	C_{iss}		5		pF	$V_{DS} = -3\text{ V}$ $V_{GS} = 0$ $f = 1\text{ MHz}$
Output Capacitance	C_{oss}		15		pF	
Reverse Transfer Capacitance	C_{rss}		1.3		pF	
Turn-on Delay Time	$t_{d(on)}$		140		ns	$V_{DD} = -3\text{ V}$, $I_D = -10\text{ mA}$ $V_{GS(on)} = -4\text{ V}$, $R_G = 10\text{ }\Omega$ $R_L = 300\text{ }\Omega$
Rise Time	t_r		330		ns	
Turn-off Delay Time	$t_{d(off)}$		220		ns	
Fall Time	t_f		320		ns	

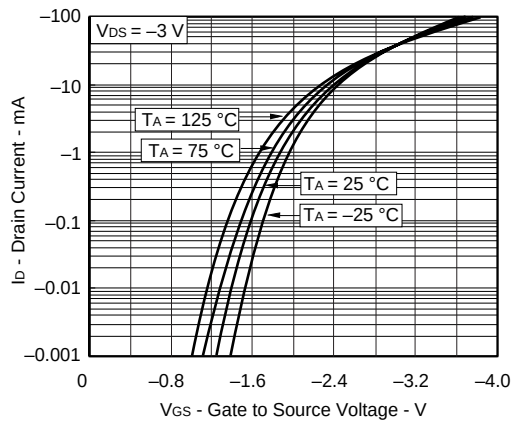
DERATING FACTOR OF FORWARD BIAS
SAFE OPERATING AREA



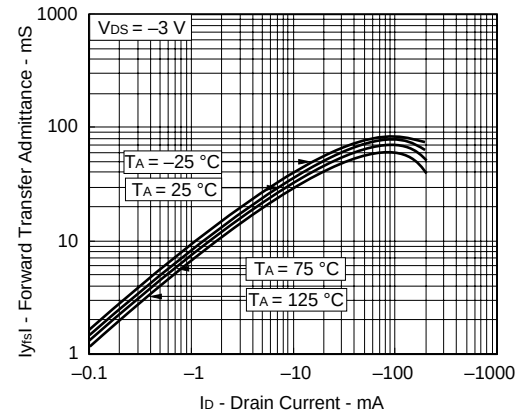
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



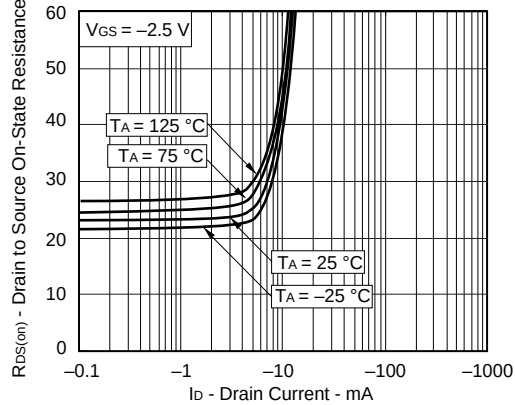
TRANSFER CHARACTERISTICS



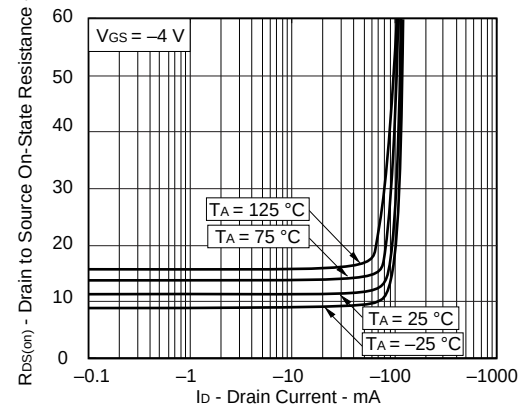
FORWARD TRANSFER ADMITTANCE vs.
DRAIN CURRENT

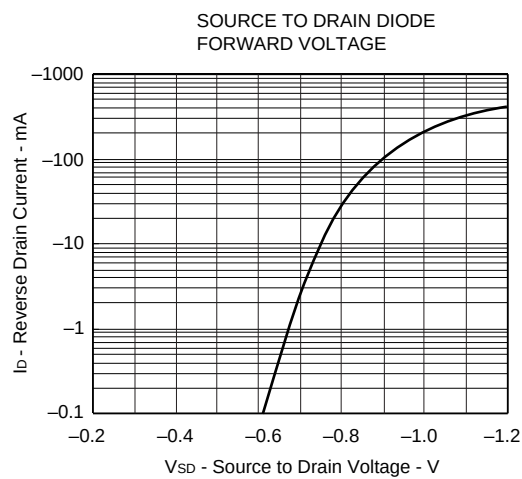
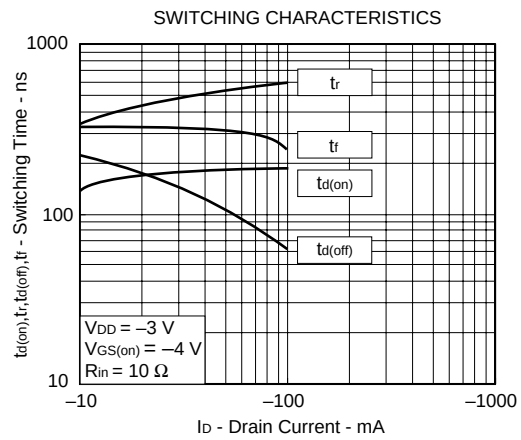
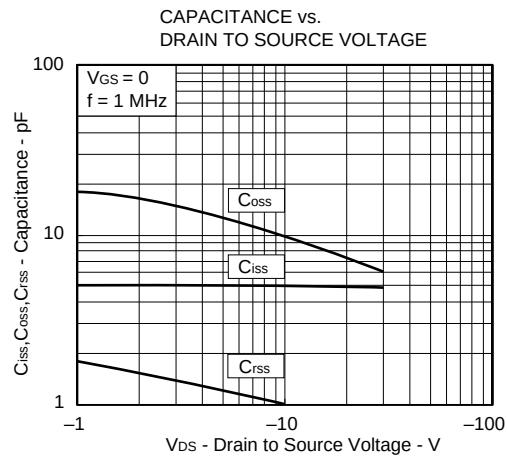
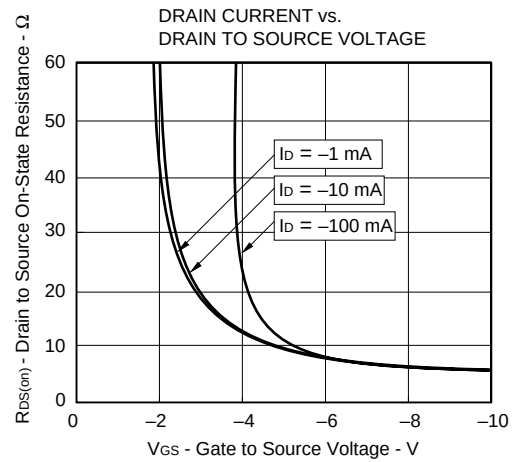
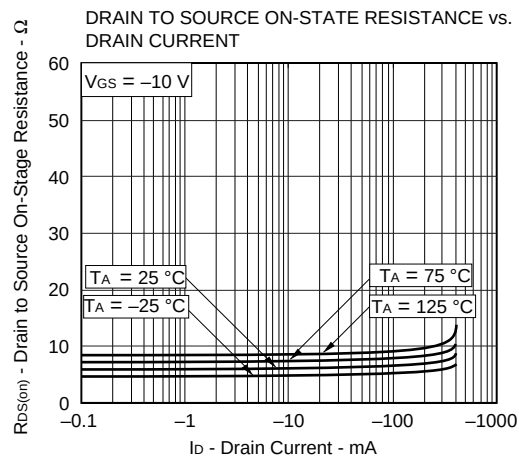


DRAIN TO SOURCE ON-STATE RESISTANCE vs.
DRAIN CURRENT



DRAIN TO SOURCE ON-STATE RESISTANCE vs.
DRAIN CURRENT





REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system	TEI-1202
Quality grade on NEC semiconductor devices	C11531E
Semiconductor device mounting technology manual	C10535E
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679E

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Anti-radioactive design is not implemented in this product.