

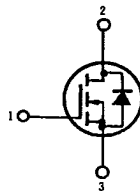
2SK296

SILICON N-CHANNEL MOS FET

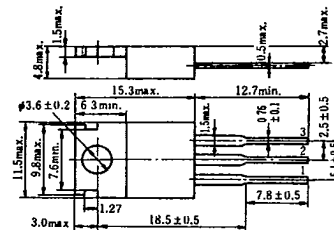
HIGH SPEED POWER SWITCHING,
HIGH FREQUENCY POWER AMPLIFIER

■ FEATURES

- Low On-Resistance.
- High Speed Switching.
- High Cutoff Frequency.
- No Secondary Breakdown.
- Suitable for Switching Regulator, DC-DC Converter, RF Amplifiers, and Ultrasonic Power Oscillators.



1. Gate
2. Drain
(Flange)
3. Source
(Dimensions in mm)



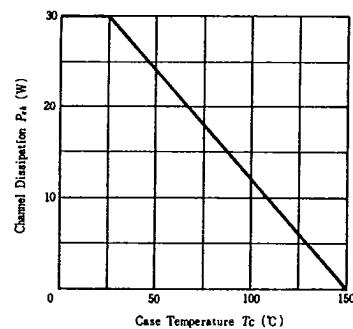
(JEDEC TO-220AB)

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

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	300	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	I_D	1	A
Drain Peak Current	$I_{D(pk)}$	2	A
Body-Drain Diode Reverse Drain Current	I_{DR}	1	A
Channel Dissipation	P_{ch} *	30	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

*Value at $T_c=25^\circ\text{C}$

POWER VS. TEMPERATURE DERATING

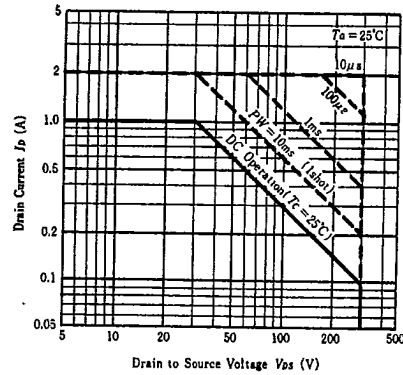


■ ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

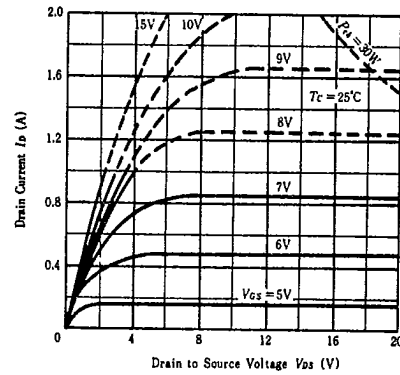
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$I_D=10\text{mA}$, $V_{GS}=0$	300	—	—	V
Gate-Source Leak Current	I_{GSS}	$V_{GS}=\pm 20\text{V}$, $V_{DS}=0$	—	—	± 1	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=240\text{V}$, $V_{GS}=0$	—	—	1	mA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=1\text{mA}$, $V_{DS}=10\text{V}$	1.0	—	4.5	V
Static Drain-Source On State Resistance	$R_{DS(on)}$	$I_D=1\text{A}$, $V_{GS}=15\text{V}$ *	—	2.5	4.0	Ω
Drain-Source Saturation Voltage	$V_{DS(on)}$	$I_D=1\text{A}$, $V_{GS}=15\text{V}$ *	—	2.5	4.0	V
Forward Transfer Admittance	$ y_{fs} $	$I_G=0.5\text{A}$, $V_{DS}=10\text{V}$ *	0.2	0.4	—	S
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}$, $V_{GS}=0$ $f=1\text{MHz}$	—	140	—	pF
Output Capacitance	C_{oss}		—	65	—	pF
Reverse Transfer Capacitance	C_{riss}		—	23	—	pF
Turn-on Time	$t_{A(on)}$	$I_D=0.5\text{A}$, $V_{GS}=15\text{V}$ $R_L=60\Omega$	—	6	—	ns
Rise Time	t_r		—	14	—	ns
Turn-off Delay Time	$t_{A(off)}$		—	40	—	ns
Fall Time	t_f		—	30	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	$I_F=1\text{A}$, $V_{GS}=0$	—	0.9	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	$I_F=1\text{A}$, $V_{GS}=0$ $di_F/dt=100\text{A}/\mu\text{s}$	—	250	—	ns

*Pulse Test

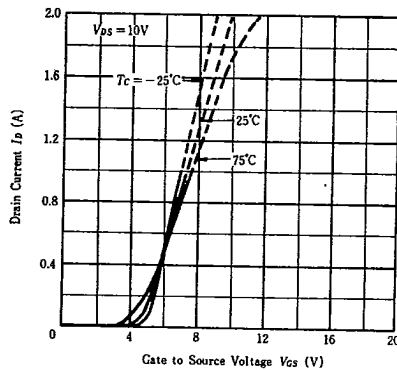
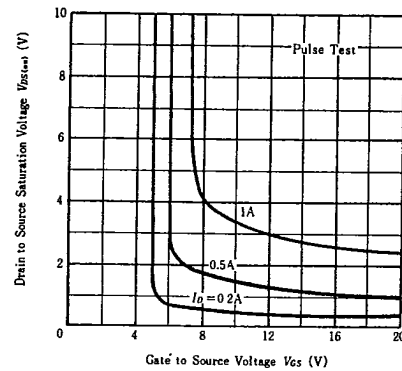
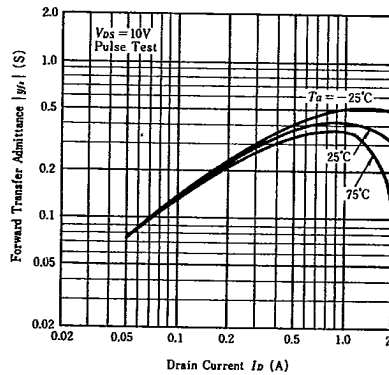
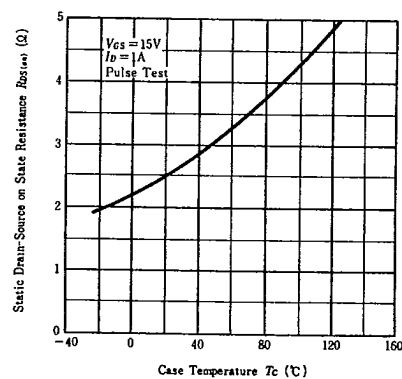
MAXIMUM SAFE OPERATION AREA

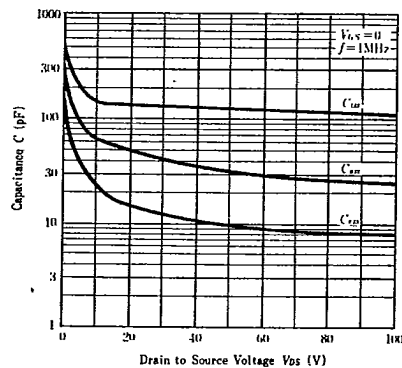
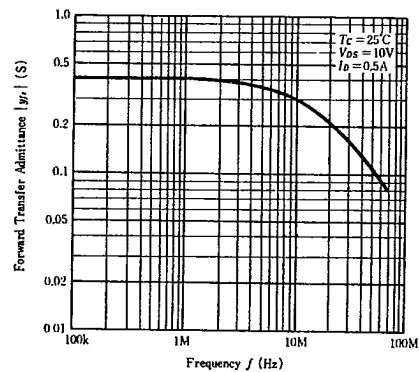


TYPICAL OUTPUT CHARACTERISTICS

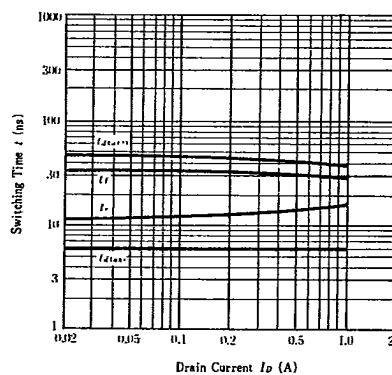
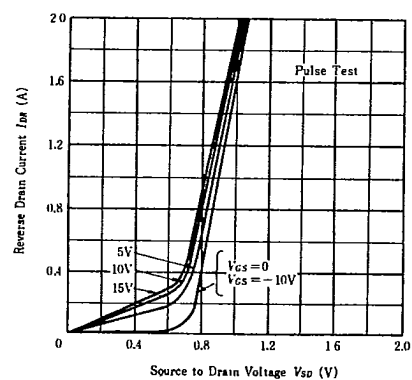


TYPICAL TRANSFER CHARACTERISTICS

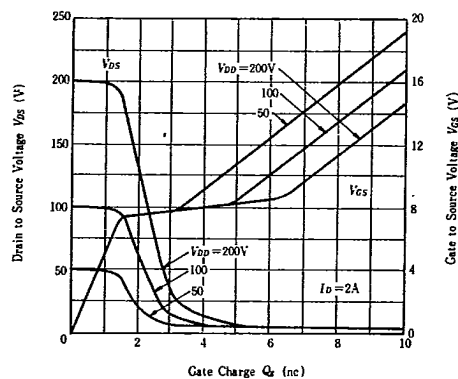
DRAIN-SOURCE SATURATION VOLTAGE
VS. GATE-SOURCE VOLTAGEFORWARD TRANSFER ADMITTANCE
VS. DRAIN CURRENTSTATIC DRAIN-SOURCE ON STATE
RESISTANCE VS. TEMPERATURE

TYPICAL CAPACITANCE VS.
DRAIN-SOURCE VOLTAGEFORWARD TRANSFER ADMITTANCE
VS. FREQUENCY

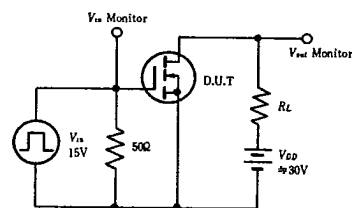
SWITCHING CHARACTERISTICS

MAXIMUM BODY-DRAIN DIODE
FORWARD VOLTAGE

DYNAMIC INPUT CHARACTERISTICS



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

