

# N-Channel MOSFET Transistor

## **2SK296 / K296**

300V / 1A

# DATASHEET

OEM – Hitachi

Source: Hitachi Databook Power Mosfet Data 4/83

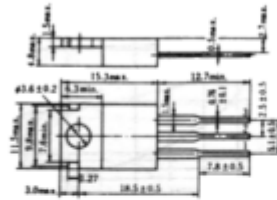
# 2SK296

## 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.



(JEDEC TO-220AB)

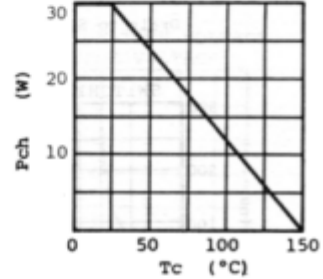
1. Gate
  2. Drain (Flange)
  3. Source
- (Dimensions in mm)

### ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DSS</sub>	300	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Drain Current	I <sub>D</sub>	1	A
Drain Peak Current	I <sub>D(peak)</sub>	2	A
Body-Drain Diode Reverse Drain Current	I <sub>DR</sub>	1	A
Channel Dissipation	P <sub>ch</sub> *	30	W
Channel Temperature	T <sub>ch</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 ~ +150	°C

\*Value at Tc=25°C

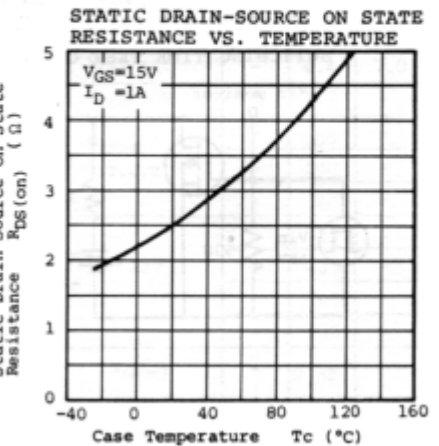
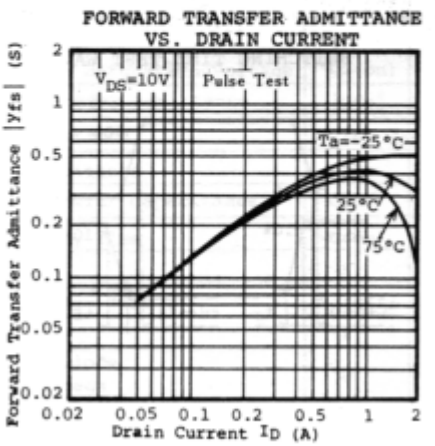
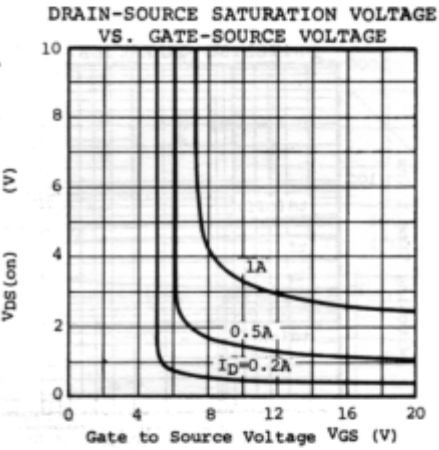
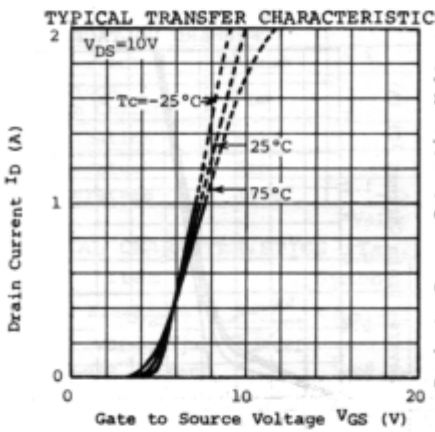
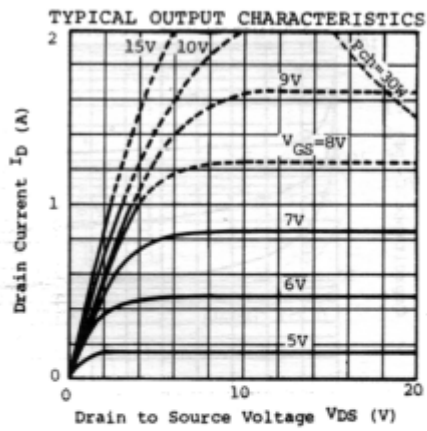
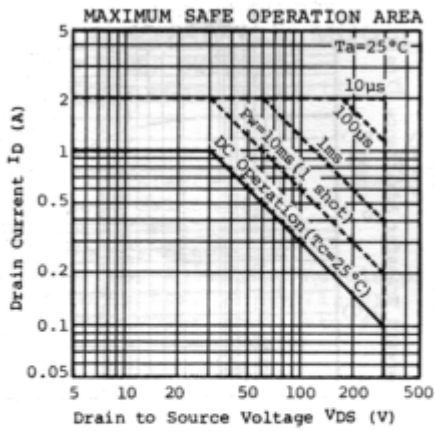
### POWER VS. TEMPERATURE DERATING



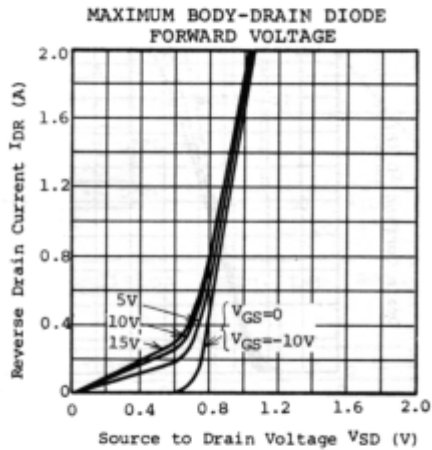
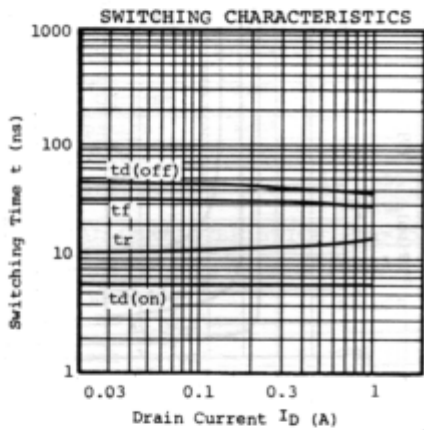
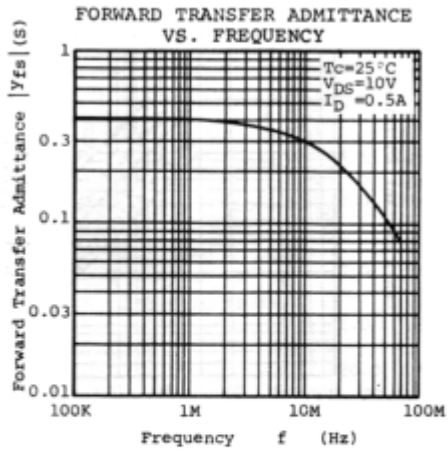
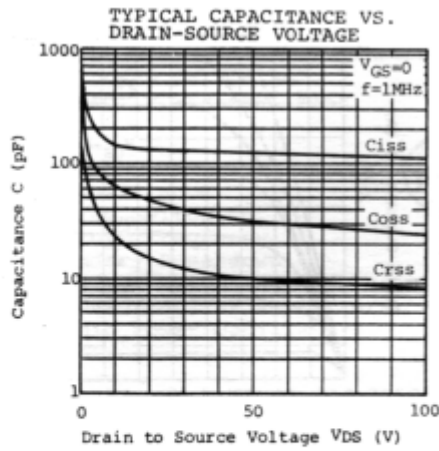
### ■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =10mA, V <sub>GS</sub> =0	300	-	-	V
Gate-Source Leak Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0	-	-	±1	µA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =240V, V <sub>GS</sub> =0	-	-	1	mA
Gate-Source Cutoff Voltage	V <sub>GS(off)</sub>	I <sub>D</sub> =1mA, V <sub>DS</sub> =10V	1.0	-	4.5	V
Static Drain-Source On State Resistance	R <sub>DS(on)</sub>	I <sub>D</sub> =1A, V <sub>GS</sub> =15V *	-	2.5	4.0	Ω
Drain-Source Saturation Voltage	V <sub>DS(on)</sub>	I <sub>D</sub> =1A, V <sub>GS</sub> =15V *	-	2.5	4.0	V
Forward Transfer Admittance	y <sub>fs</sub>	I <sub>D</sub> =0.5A, V <sub>DS</sub> =10V *	0.2	0.4	-	S
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10 V, V <sub>GS</sub> =0	-	140	-	pF
Output Capacitance	C <sub>oss</sub>	f=1MHz	-	65	-	pF
Reverse Transfer Capacitance	C <sub>rss</sub>	f=1MHz	-	23	-	pF
Turn-On Delay Time	t <sub>d(on)</sub>	I <sub>D</sub> =0.5A, V <sub>GS</sub> =15V R <sub>L</sub> =60Ω	-	6	-	ns
Rise Time	t <sub>r</sub>		-	14	-	ns
Turn-Off Delay Time	t <sub>d(off)</sub>		-	40	-	ns
Fall Time	t <sub>f</sub>		-	30	-	ns
Body-Drain Diode Forward Voltage	V <sub>DF</sub>	I <sub>F</sub> =1A, V <sub>GS</sub> =0	-	0.9	-	V
Body-Drain Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =1A, V <sub>GS</sub> =0	-	250	-	ns

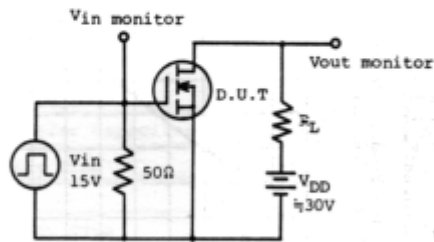
2SK296



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SWITCHING TIME TEST CIRCUIT



SWITCHING TIME TEST WAVEFORMS

