

N-Channel MOSFET Transistor

2SK311 / K311

450V / 3A

DATASHEET

OEM – Hitachi

Source: Hitachi Databook Power Mosfet Data 4/83

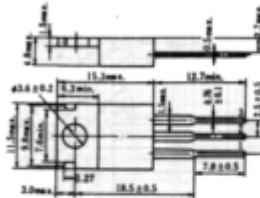
2SK310 , 2SK311

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)

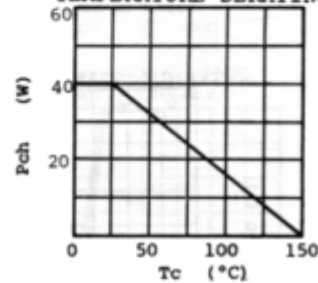
1. Gate
 2. Drain (Flange)
 3. Source
- (Dimensions in mm)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	K310	K311	Unit
Drain-Source Voltage	V _{DS}	400	450	V
Gate-Source Voltage	V _{GS}	±20		V
Drain Current	I _D	3		A
Drain Peak Current	I _{D(peak)}	6		A
Body-Drain Diode Reverse Drain Current	I _{DR}	3		A
Channel Dissipation	P _{ch} *	40		W
Channel Temperature	T _{ch}	150		°C
Storage Temperature	T _{stg}	-55 ~ +150		°C

*Value at Tc=25°C

POWER VS. TEMPERATURE DERATING



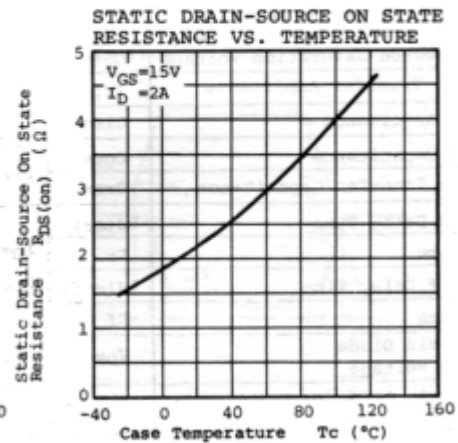
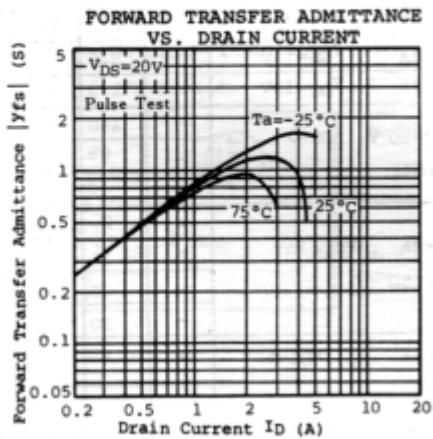
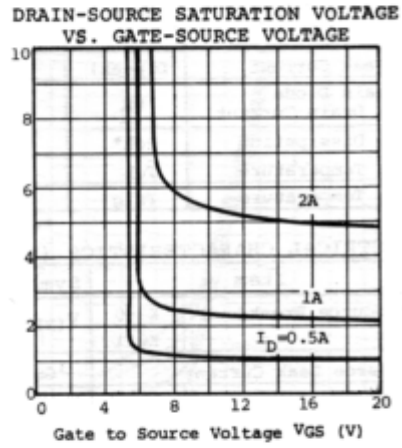
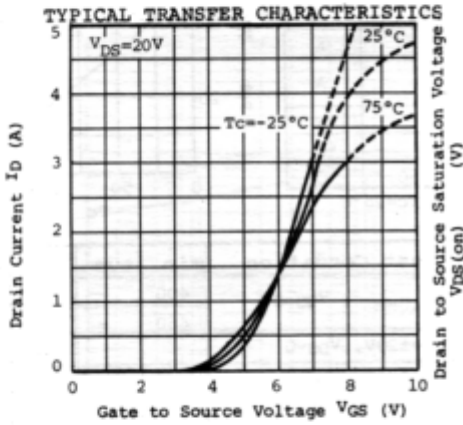
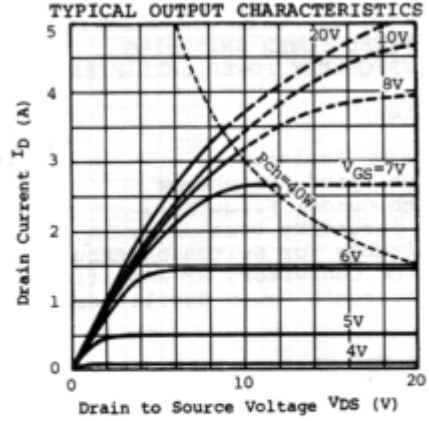
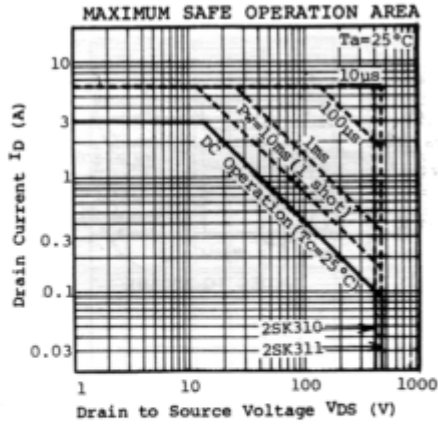
■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	K310	I _D =10mA , V _{GS} =0	400	-	-	V
	K311		450	-	-	V
Gate-Source Leak Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0	-	-	±1	µA
Zero Gate Voltage Drain Current	K310	V _{DS} =320V, V _{GS} =0	-	-	1	mA
	K311		V _{DS} =360V, V _{GS} =0	-	-	1
Gate-Source Cutoff Voltage	V _{GS(off)}	I _D =1mA , V _{DS} =10V	1.0	-	5.0	V
Static Drain-Source On State Resistance	R _{DS(on)}	I _D =2A , V _{GS} =15V *	-	2.5	4.0	Ω
Drain-Source Saturation Voltage	V _{DS(on)}	I _D =2A , V _{GS} =15V *	-	5.0	8.0	V
Forward Transfer Admittance	y _{fs}	I _D =2A , V _{DS} =10V *	0.6	1.0	-	S
Input Capacitance	C _{iss}	V _{DS} =10 V, V _{GS} =0 f=1MHz	-	440	-	pF
Output Capacitance	C _{oss}		-	95	-	pF
Reverse Transfer Capacitance	C _{rss}		-	13	-	pF
Turn-On Delay Time	t _{d(on)}	I _D =2A , V _{GS} =15V R _L =15Ω	-	9	-	ns
Rise Time	t _r		-	16	-	ns
Turn-Off Delay Time	t _{d(off)}		-	40	-	ns
Fall Time	t _f		-	30	-	ns
Body-Drain Diode Forward Voltage	V _{DF}		I _F =2A , V _{GS} =0	-	0.85	-
Body-Drain Diode Reverse Recovery Time	t _{rr}	I _F =2A , V _{GS} =0	-	500	-	ns

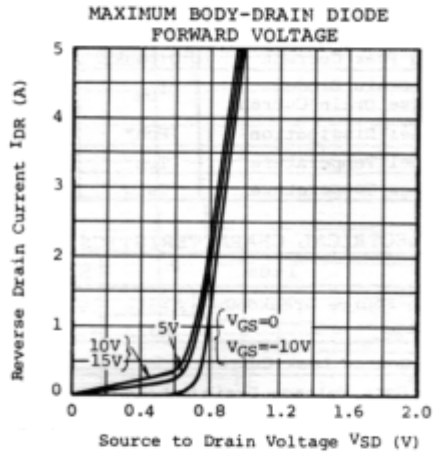
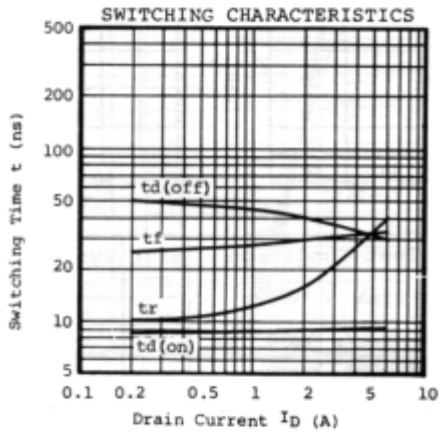
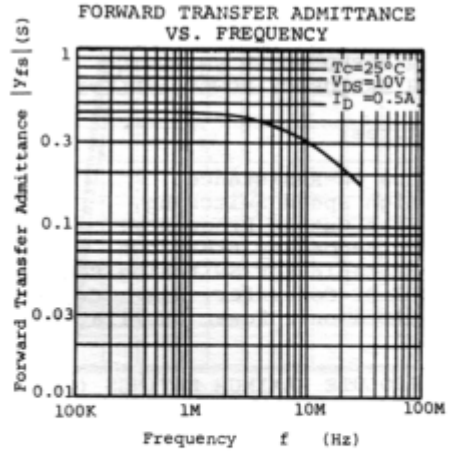
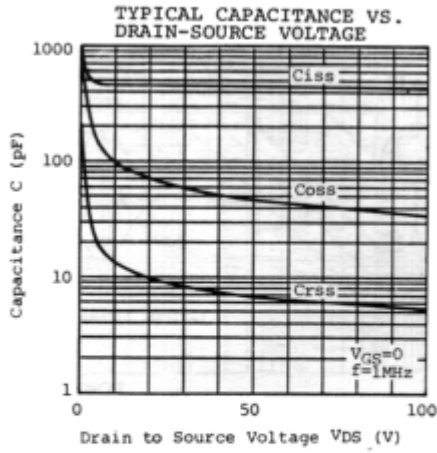


*Pulse Test

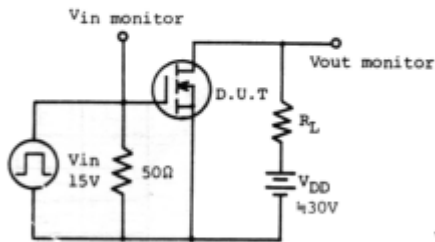
2SK310,2SK311



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SWITCHING TIME TEST CIRCUIT



SWITCHING TIME TEST WAVEFORMS

