N-Channel MOSFET Transistor

2SK375 / K375

300V / 1A

DATASHEET

OEM – Hitachi

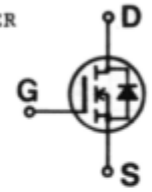
Source: Hitachi Databook Power Mosfet Data 4/83

Datasheet Rev. 2.0 – 09/19 – data without warranty / liability

2SK375

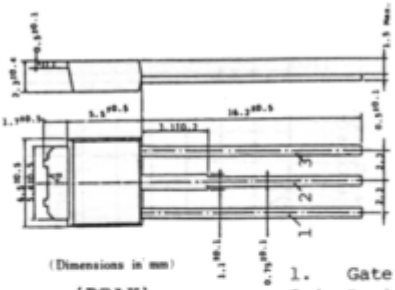
SILICON N-CHANNEL MOS FET

HIGH SPEED POWER SWITCHING
HIGH FREQUENCY POWER AMPLIFIER



Features;

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



(DPAK)

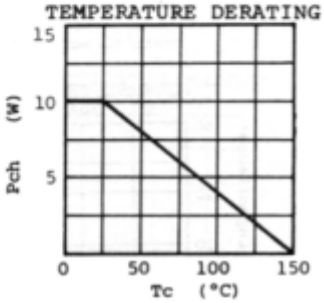
1. Gate
2,4. Drain
3. Source

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	300	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	I_D	1	A
Drain Peak Current	$I_{D(peak)}$	2	A
Body-Drain Diode Reverse Drain Current	I_{DR}	1	A
Channel Dissipation	Pch*	10	W
Channel Temperature	Tch	150	°C
Storage Temperature	Tstg	-55 ~ +150	°C

*Value at Tc=25°C

POWER VS. TEMPERATURE DERATING



■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

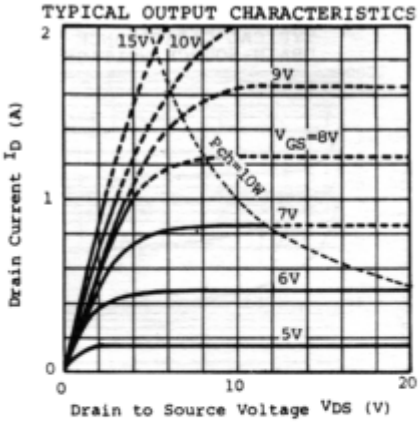
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0	300	-	-	V
Gate-Source Leak Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0	-	-	±1	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=240V, V_{GS}=0	-	-	1	mA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	I_D=1mA, V_{DS}=10V	1.0	-	5.0	V
Static Drain-Source On State Resistance	$R_{DS(on)}$	I_D=1A, V_{GS}=15V *	-	2.5	4.0	Ω
Drain-Source Saturation Voltage	$V_{DS(on)}$	I_D=1A, V_{GS}=15V *	-	2.5	4.0	V
Forward Transfer Admittance	$\|yfs\|$	I_D=0.5A, V_{DS}=10V *	0.2	0.4	-	S
Input Capacitance	Ciss	V_{DS}=10 V, V_{GS}=0 f=1MHz	-	140	-	pF
Output Capacitance	Coss		-	65	-	pF
Reverse Transfer Capacitance	Crss		-	23	-	pF
Turn-On Delay Time	$t_{d(on)}$	I_D=0.5A, V_{GS}=15V R_L=60Ω	-	6	-	ns
Rise Time	t_r		-	14	-	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=1A, V_{GS}=0	-	0.9	-	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	I_F=1A, V_{GS}=0	-	250	-	ns

*Pulse Test

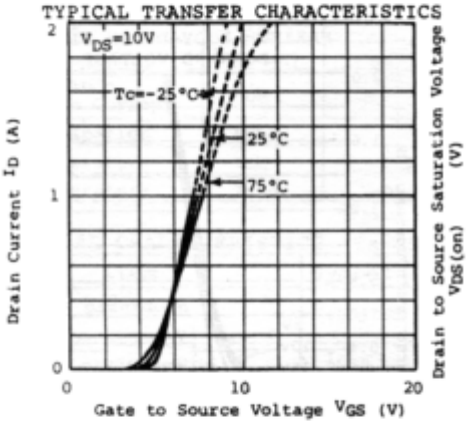
HITACHI

MAXIMUM SAFE OPERATION AREA

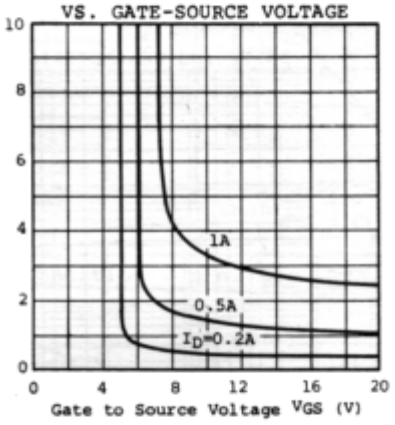
TYPICAL OUTPUT CHARACTERISTICS



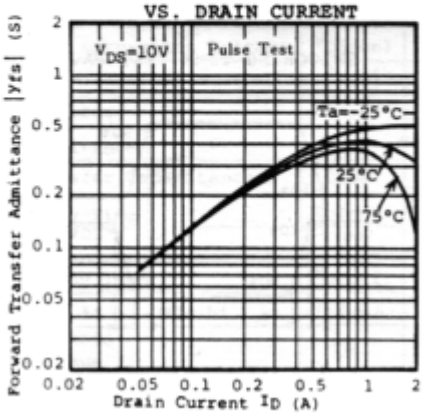
TYPICAL TRANSFER CHARACTERISTICS



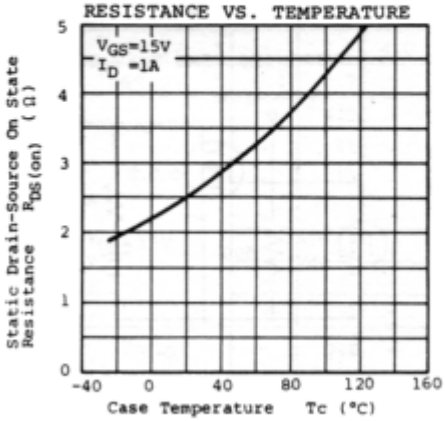
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



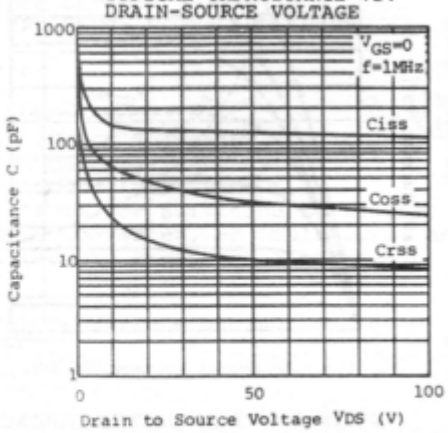
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



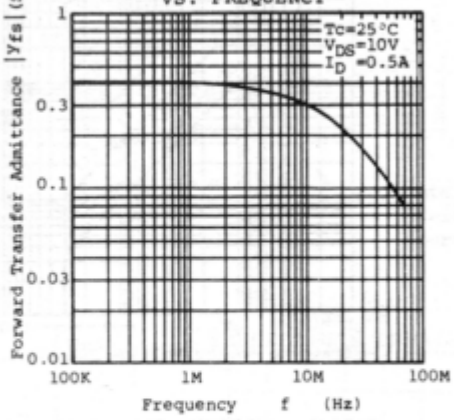
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



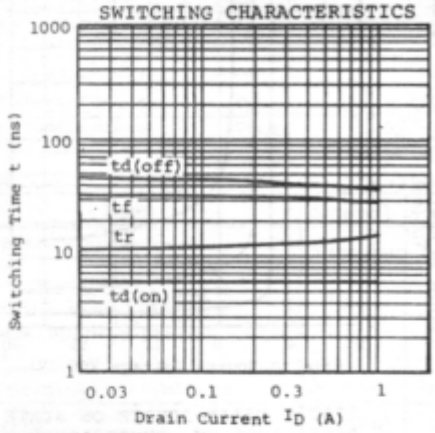
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



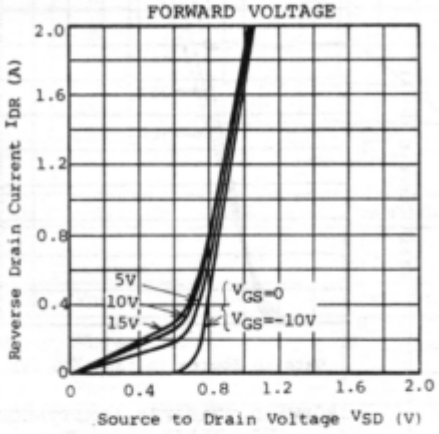
FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



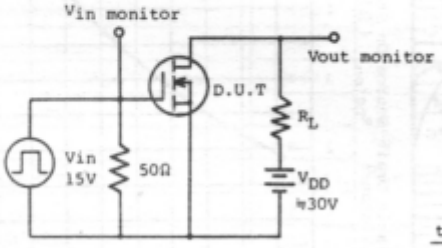
SWITCHING CHARACTERISTICS



MAXIMUM BODY-DRAIN DIODE FORWARD VOLTAGE



SWITCHING TIME TEST CIRCUIT



SWITCHING TIME TEST WAVEFORMS