2SK430(L), 2SK430(S)

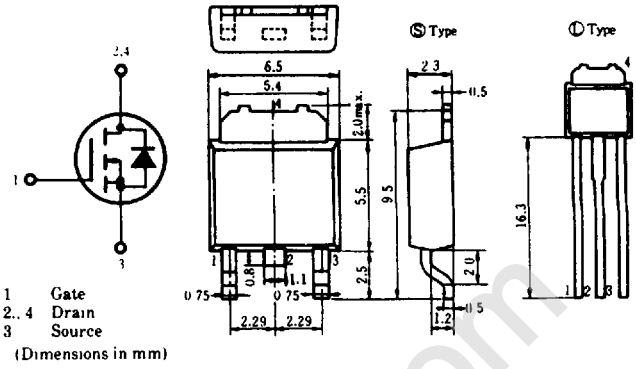
HITACHI/(OPTOELECTRONICS)

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 and DC-DC Converter.



1 Gate
2,, 4 Drain
3 Source
(Dimensions in mm)

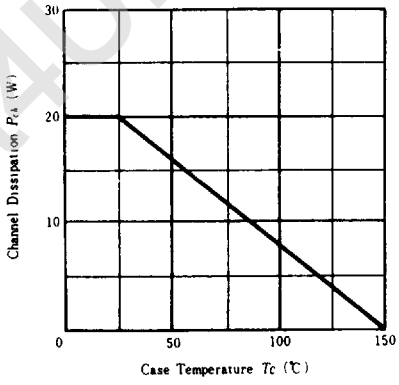
(DPAK)

■ ABSOLUTE MAXIMUM RATINGS (T_a=25 °C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	150	V
Gate-Source Voltage	V_{GSS}	±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}*	20	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	−55 ~ +150	°C

*Value at T_c=25 °C

POWER VS. TEMPERATURE DERATING

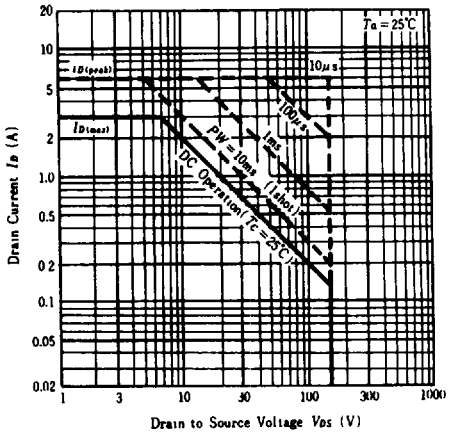


■ ELECTRICAL CHARACTERISTICS (T_a=25 °C)

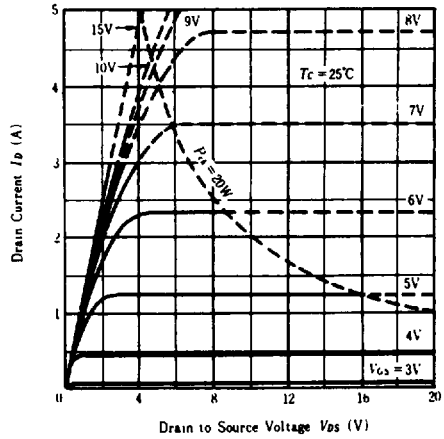
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0	150	—	—	V
Gate-Source Leak Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0	—	—	±1	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=120V, V_{GS}=0	—	—	1	mA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	I_D=1mA, V_{DS}=10V	1.0	—	4.0	V
Static Drain-Source On State Resistance	$R_{DS(on)}$	I_D=2A, V_{GS}=15V*	—	0.8	1.0	Ω
Drain-Source Saturation Voltage	$V_{DS(on)}$	I_D=2A, V_{GS}=15V*	—	1.6	2.0	V
Forward Transfer Admittance	$\|y_{fs}\|$	I_D=2A, V_{DS}=10V*	0.5	0.9	—	S
Input Capacitance	C_{iss}	V_{DS}=10V, V_{GS}=0, f=1MHz	—	260	—	pF
Output Capacitance	C_{oss}		—	100	—	pF
Reverse Transfer Capacitance	C_{rss}		—	14		pF
Turn-on Delay Time	$t_{d(on)}$	I_D=2A, V_{GS}=15V, R_L=15Ω	—	10	—	ns
Rise Time	t_r		—	25	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	30	—	ns
Fall Time	t_f		—	20	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	I_F=2A, V_{GS}=0	—	0.8	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	I_F=2A, V_{GS}=0, dI_F/dt=50A/μs	—	200	—	ns

*Pulse Test

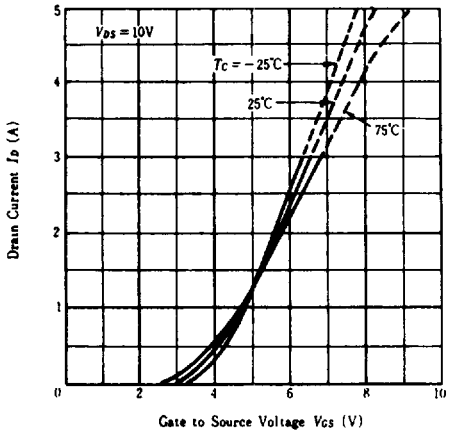
MAXIMUM SAFE OPERATION AREA



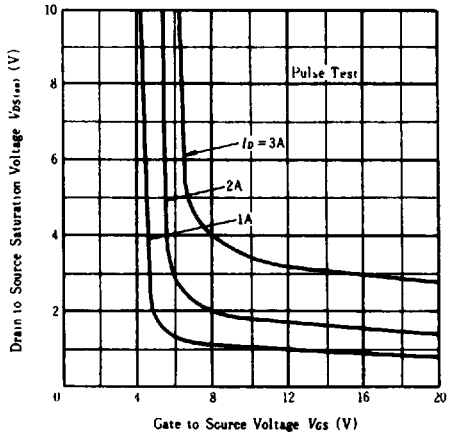
TYPICAL OUTPUT CHARACTERISTICS



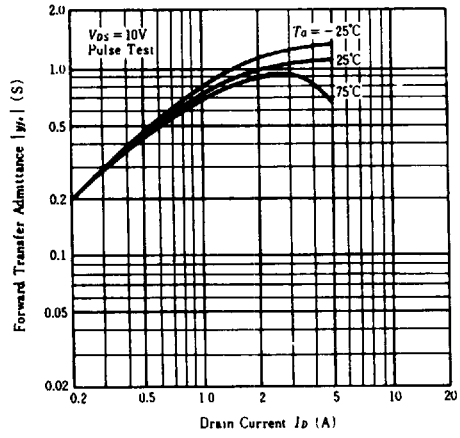
TYPICAL TRANSFER CHARACTERISTICS



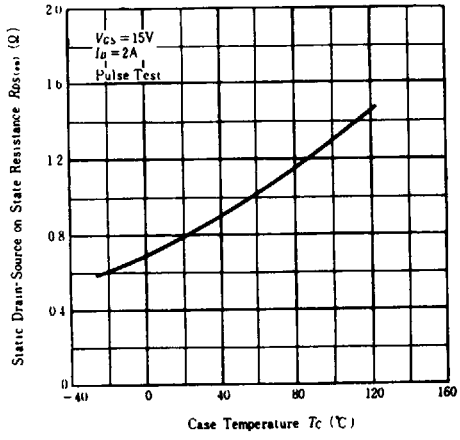
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



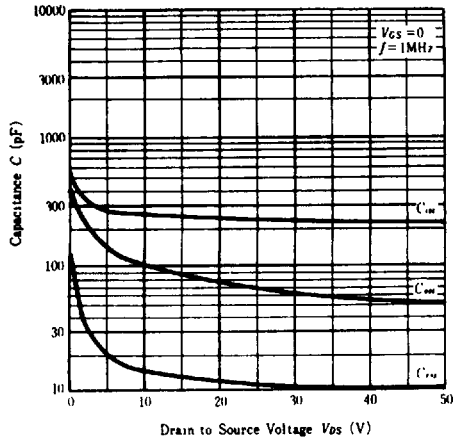
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



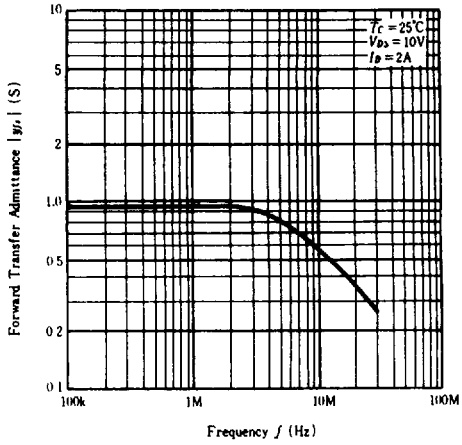
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



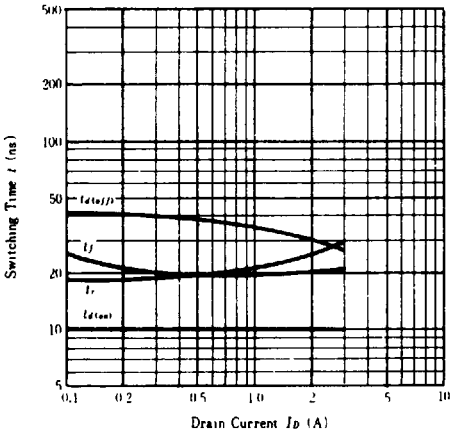
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



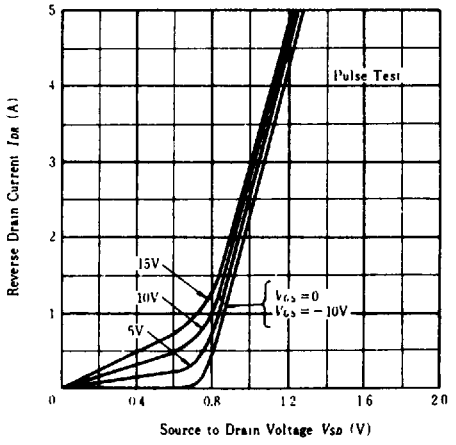
FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



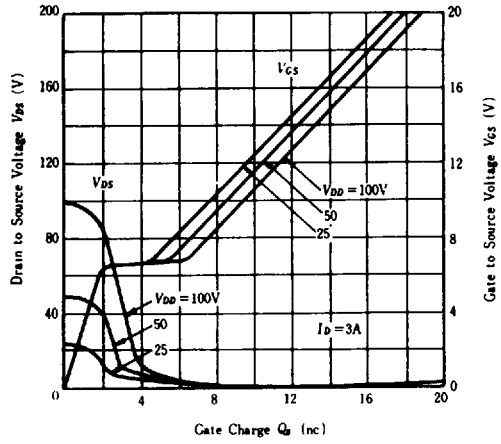
SWITCHING CHARACTERISTICS



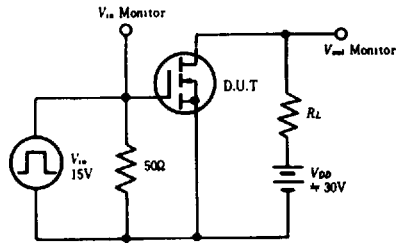
MAXIMUM BODY-DRAIN DIODE FORWARD VOLTAGE



DYNAMIC INPUT CHARACTERISTICS



SWITCHING TIME TEST CIRCUIT



WAVEFORMS