

2SK623

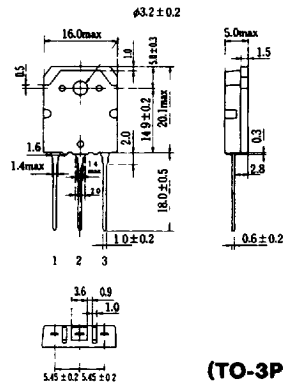
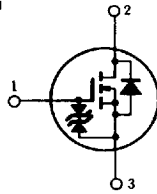
HITACHI/(OPTOELECTRONICS)

SILICON N-CANNEL MOS FET

HIGH SPEED POWER SWITCHING

FEATURES

- Low On-Resistance
- High Speed Switching
- Low Drive Current
- No Secondary Breakdown
- Suitable for Switching Regulator, DC-DC Converter and Motor Driver



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

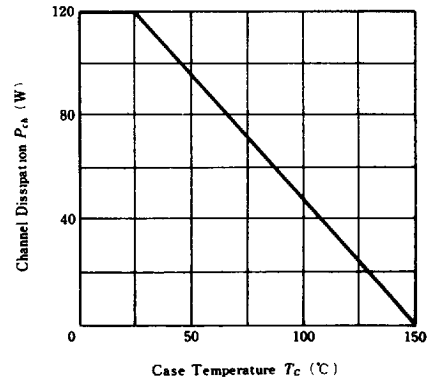
(TO-3P)

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	250	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	I_D	20	A
Drain Peak Current	$I_{D(pulse)}$ *	80	A
Body-Drain Diode Reverse Drain Current	I_{DR}	20	A
Channel Dissipation	P_{ch} **	120	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	-55~+150	°C

*PW≤10μs, duty cycle≤1%
**Value at Tc=25°C

POWER VS. TEMPERATURE DERATING



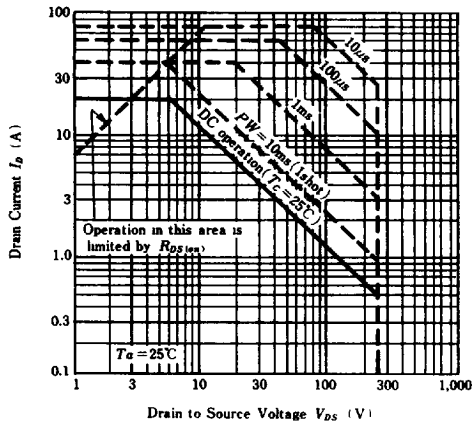
ELECTRICAL CHARACTERISTICS (Ta=25°C)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10mA, V_{GS}=0$	250	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G=±100μA, V_{DS}=0$	±20	—	—	V
Gate-Source Leak Current	I_{GSS}	$V_{GS}=±16V, V_{DS}=0$	—	—	±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=200V, V_{GS}=0$	—	—	250	μA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=1mA, V_{DS}=10V$	2.0	—	4.0	V
Static Drain-Source on State Resistance	$R_{DS(on)}$	$I_D=10A, V_{GS}=10V^*$	—	0.12	0.15	Ω
Forward Transfer Admittance	$ y_{fs} $	$I_D=10A, V_{DS}=10V^*$	7	12	—	S
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0, f=1MHz$	—	2000	—	pF
Output Capacitance	C_{oss}		—	950	—	pF
Reverse Transfer Capacitance	C_{rss}		—	270	—	pF
Turn-on Delay Time	$t_{d(on)}$	$I_D=10A, V_{GS}=10V, R_L=3Ω$	—	25	—	ns
Rise Time	t_r		—	200	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	200	—	ns
Fall Time	t_f		—	160	—	ns
Body-Drain Diode Forward Voltage	V_{DF}		$I_F=20A, V_{GS}=0$	—	1.2	—
Body-Drain Diode Reverse Recovery Time	t_{rr}	$I_F=20A, V_{GS}=0, di_F/dt=50A/μs$	—	450	—	ns

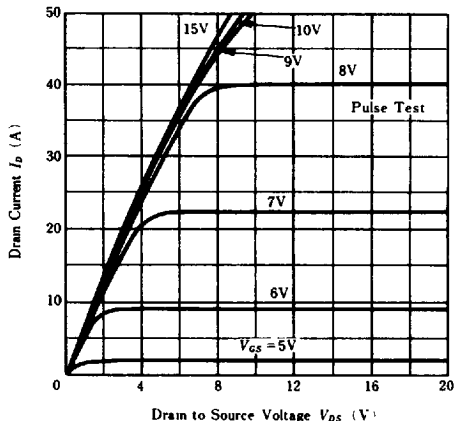
*Pulse Test

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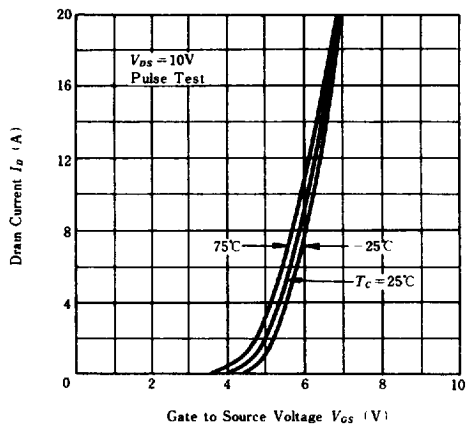
MAXIMUM SAFE OPERATION AREA



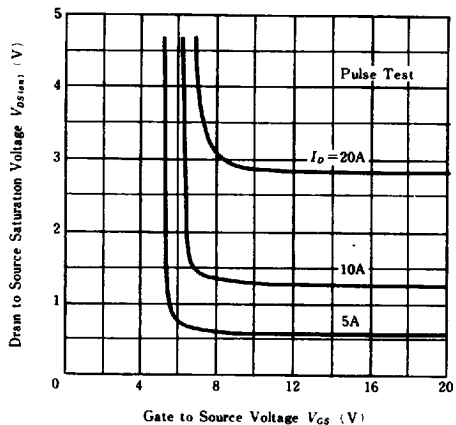
TYPICAL OUTPUT CHARACTERISTICS



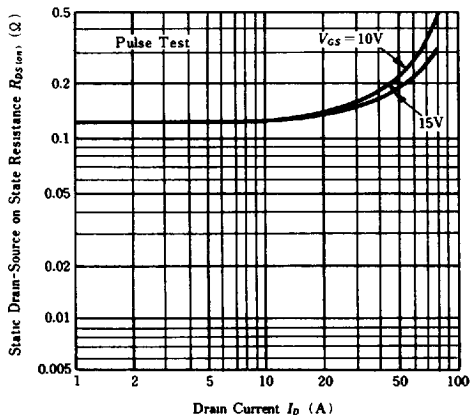
TYPICAL TRANSFER CHARACTERISTICS



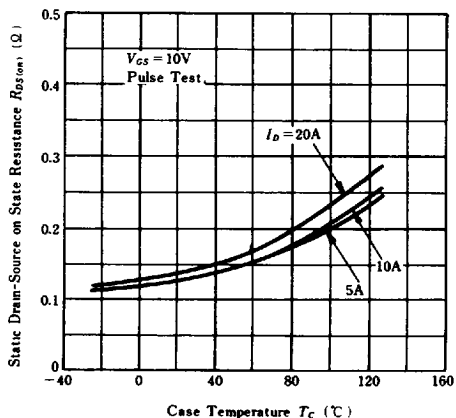
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. DRAIN CURRENT

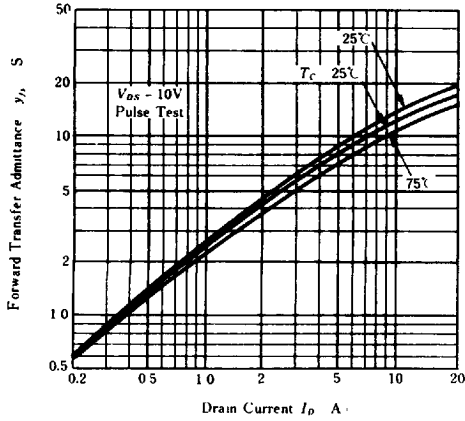


STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE

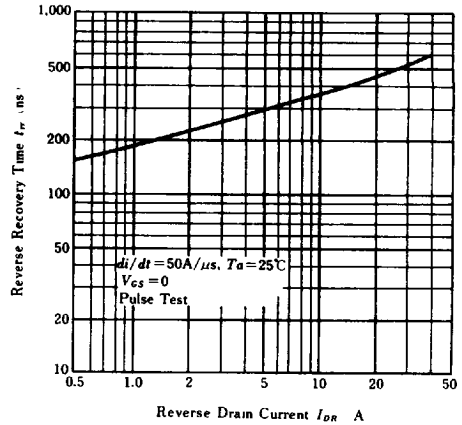


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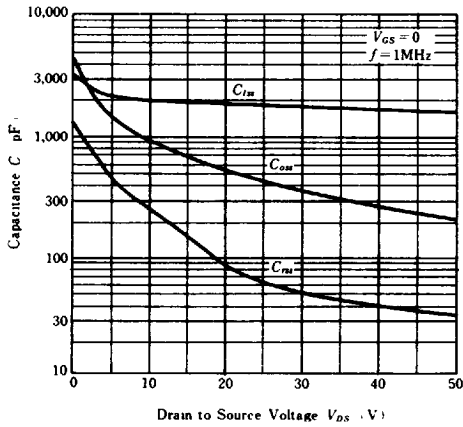
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



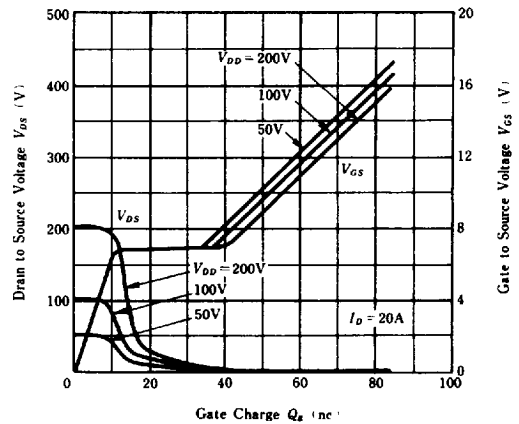
BODY-DRAIN DIODE REVERSE RECOVERY TIME



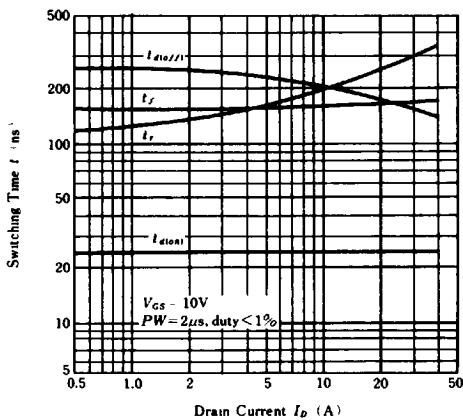
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



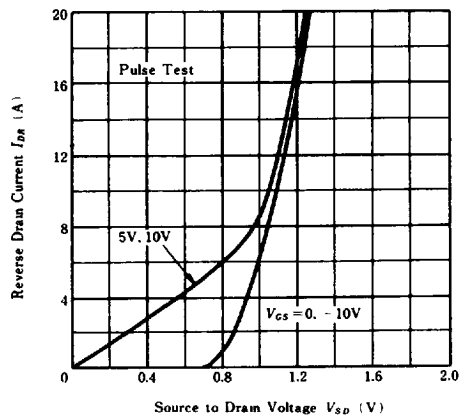
DYNAMIC INPUT CHARACTERISTICS



SWITCHING CHARACTERISTICS

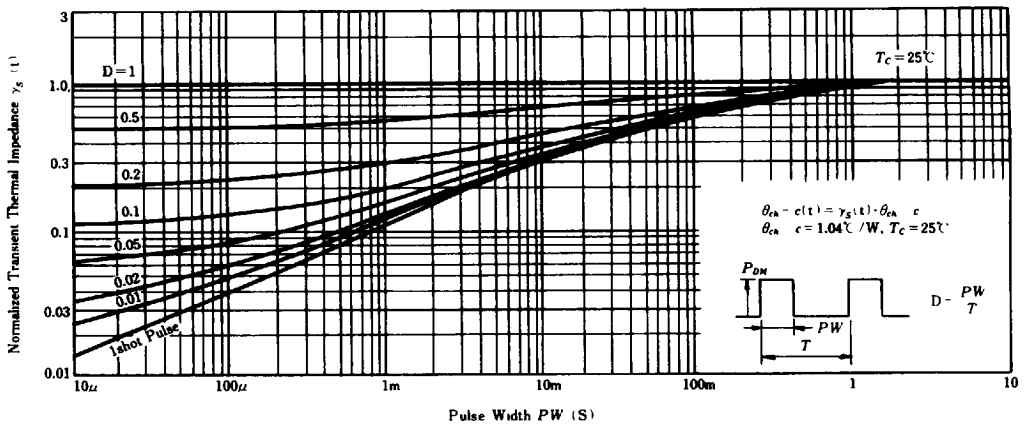


REVERSE DRAIN CURRENT VS. SOURCE TO DRAIN VOLTAGE

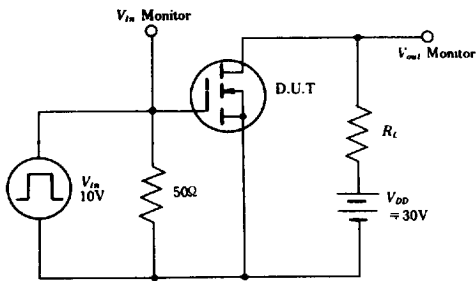


HITACHI/(OPTOELECTRONICS)

NORMALIZED TRANSIENT THERMAL IMPEDANCE VS. PULSE WIDTH



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

