

2SK696

HITACHI/(OPTOELECTRONICS)

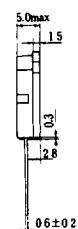
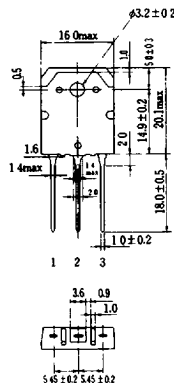
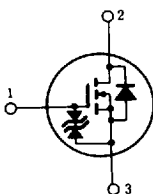
SILICON N-CHANNEL MOS FET

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HIGH SPEED POWER SWITCHING

FEATURES

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



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

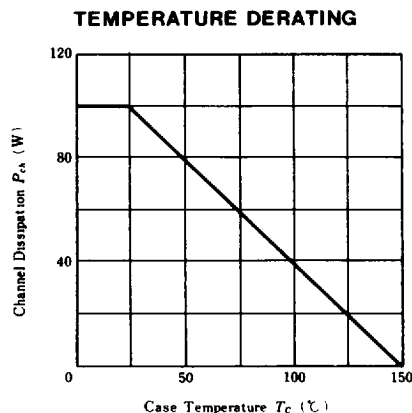
(TO-3P)

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	1000	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	I_D	3	A
Drain Peak Current	$I_{D(pulse)}$ *	10	A
Body-Drain Diode Reverse Drain Current	I_{DR}	3	A
Channel Dissipation	P_{ca} **	100	W
Channel Temperature	T_{ca}	150	°C
Storage Temperature	T_{stg}	-55 ~ +150	°C

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

POWER VS. TEMPERATURE DERATING

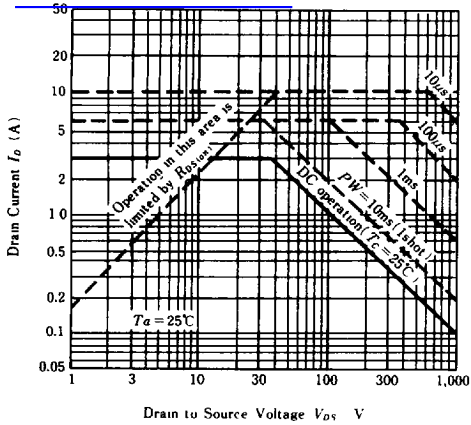


ELECTRICAL CHARACTERISTICS (Ta=25°C)

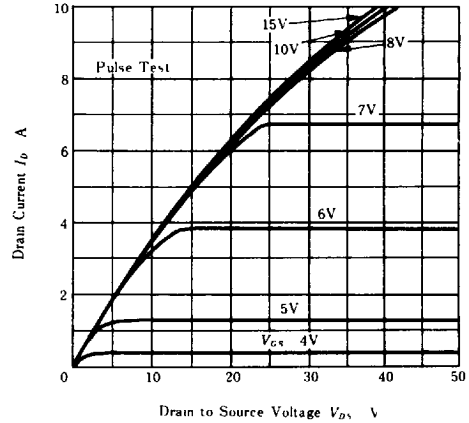
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10mA, V_{GS}=0$	1000	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G=±100μA, V_{DS}=0$	±20	—	—	V
Gate-Source Leak Current	I_{GSS}	$V_{GS}=±16V, V_{DS}=0$	—	—	±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=800V, V_{GS}=0$	—	—	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	$R_{DS(on)}$	$I_D=2A, V_{GS}=10V^*$	—	3.0	4.0	Ω
Forward Transfer Admittance	$ y_{fs} $	$I_D=2A, V_{DS}=20V^*$	1.2	2.4	—	S
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0, f=1MHz$	—	1170	—	pF
Output Capacitance	C_{oss}		—	610	—	pF
Reverse Transfer Capacitance	C_{rss}		—	420	—	pF
Turn-on Delay Time	t_{don}	$I_D=2A, V_{GS}=10V, R_L=15Ω$	—	20	—	ns
Rise Time	t_r		—	125	—	ns
Turn-off Delay Time	t_{doff}		—	135	—	ns
Fall Time	t_f		—	115	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	$I_F=3A, V_{GS}=0$	—	0.9	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	$I_F=3A, V_{GS}=0, dI_F/dt=100A/μs$	—	1000	—	ns

*Pulse Test

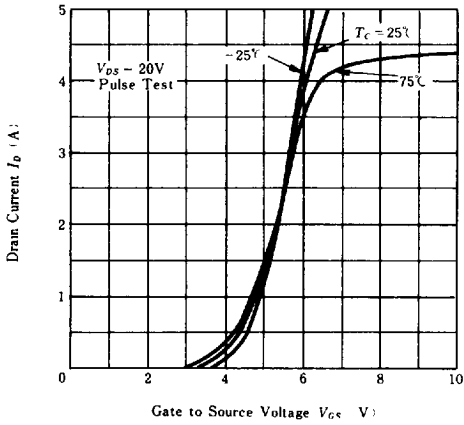
MAXIMUM SAFE OPERATION AREA



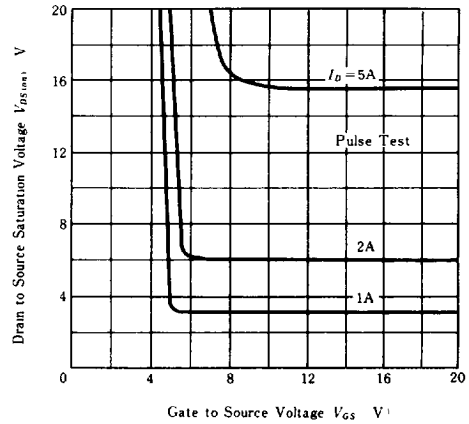
TYPICAL OUTPUT CHARACTERISTICS



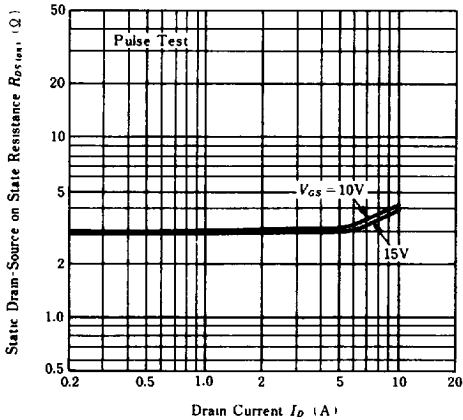
TYPICAL TRANSFER CHARACTERISTICS



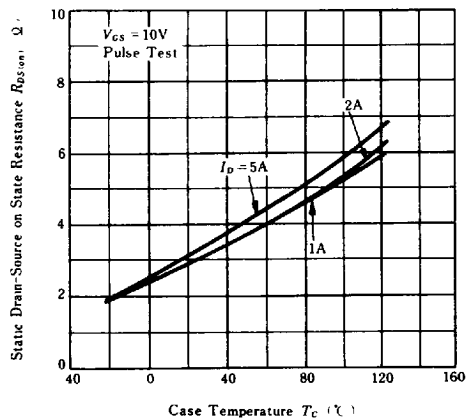
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. DRAIN CURRENT

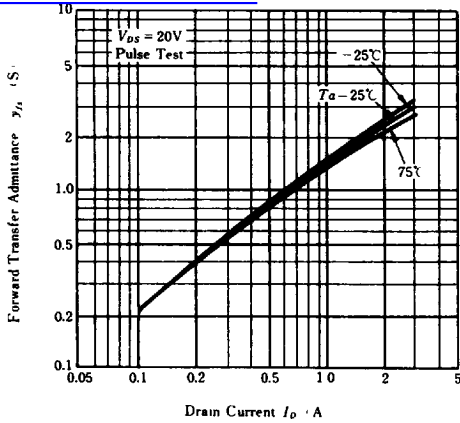


STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE

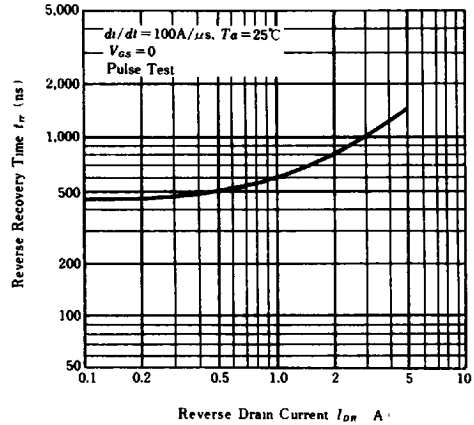


**FORWARD TRANSFER ADMITTANCE
 DRAIN CURRENT**

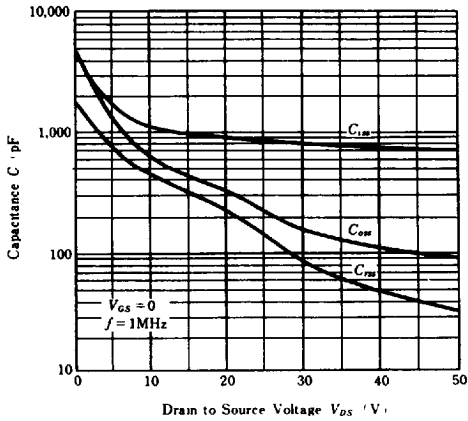
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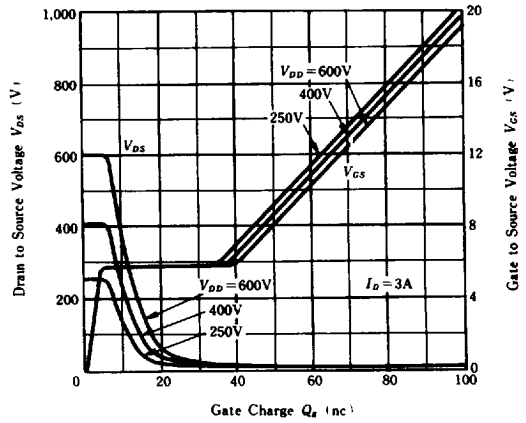
**BODY DRAIN DIODE REVERSE
 RECOVERY TIME**



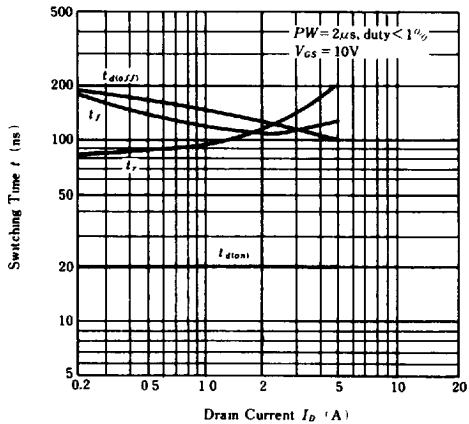
**TYPICAL CAPACITANCE
 VS. DRAIN-SOURCE VOLTAGE**



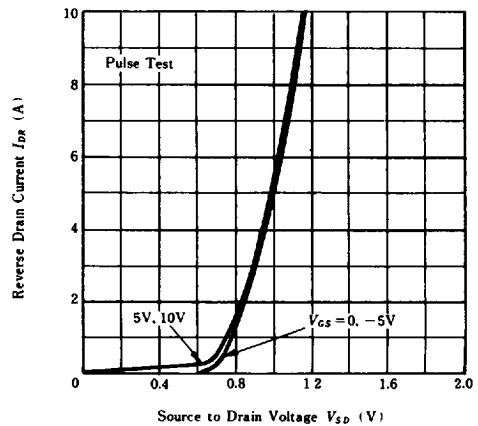
DYNAMIC INPUT CHARACTERISTICS



SWITCHING CHARACTERISTICS

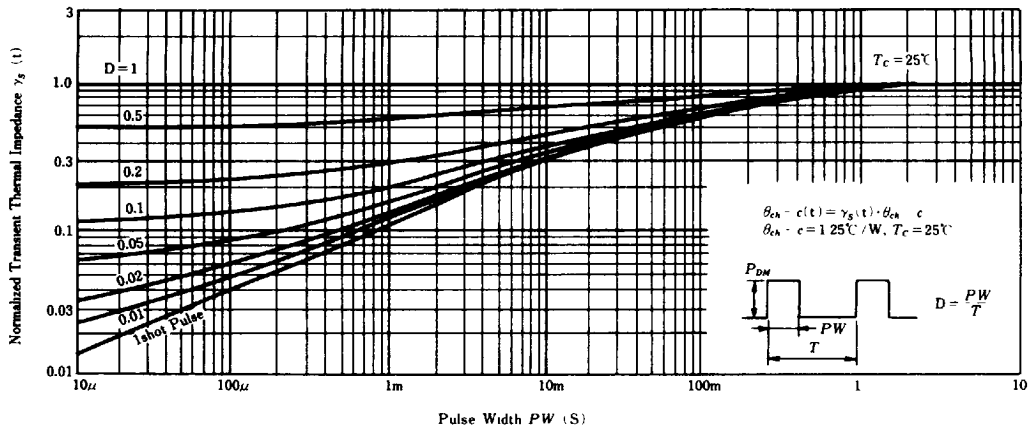


**REVERSE DRAIN CURRENT VS.
 SOURCE TO DRAIN VOLTAGE**

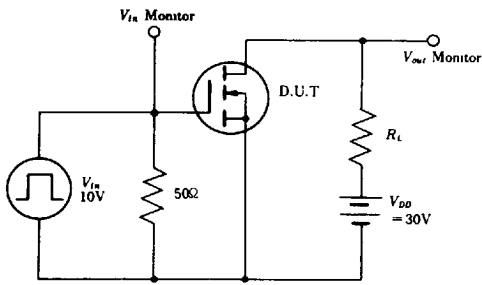


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NORMALIZED TRANSIENT THERMAL IMPEDANCE VS. PULSE WIDTH



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

