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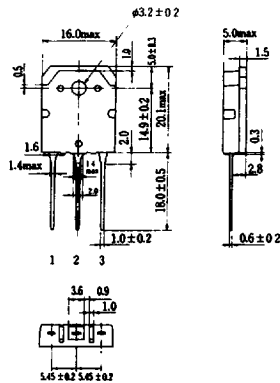
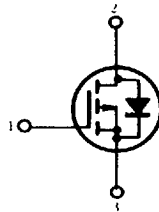
HITACHI/(OPTOELECTRONICS) BJE D

SILICON P-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, Motor Control, and Ultrasonic Power Oscillators.



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

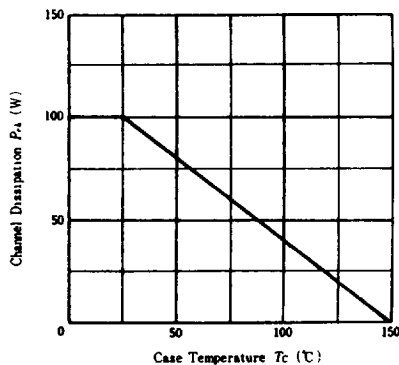
(TO-3P)

ABSOLUTE MAXIMUM RATINGS ($T_c=25^\circ\text{C}$)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-200	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	I_D	-8	A
Drain Peak Current	$I_{D(peak)}$	-12	A
Body-Drain Diode Reverse Drain Current	I_{DR}	-8	A
Channel Dissipation	P_{ch} *	100	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

*Value at $T_c=25^\circ\text{C}$

POWER VS. TEMPERATURE DERATING

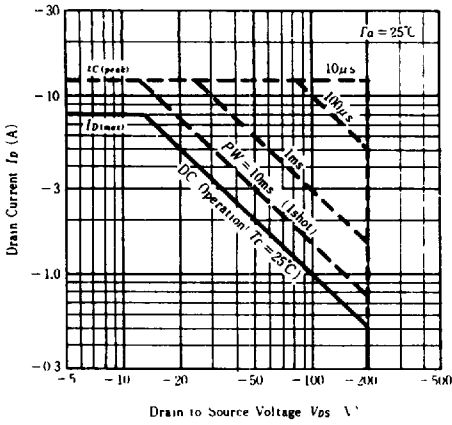


ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$)

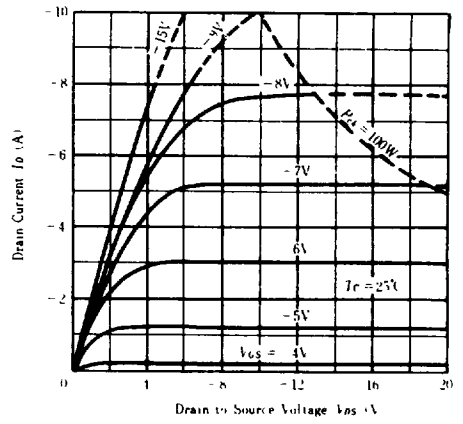
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$I_D=-10\text{mA}$, $V_{GS}=0$	-200	—	—	V
Gate-Source Leak Current	I_{GSS}	$V_{GS}=\pm 20\text{V}$, $V_{DS}=0$	—	—	± 1	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-160\text{V}$, $V_{GS}=0$	—	—	-1	mA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=-1\text{mA}$, $V_{DS}=-10\text{V}$	-2.0	—	-5.0	V
Static Drain-Source On State Resistance	$R_{DS(on)}$	$I_D=-4\text{A}$, $V_{GS}=-15\text{V}$ *	—	0.6	0.8	Ω
Drain-Source Saturation Voltage	$V_{D(sat)}$	$I_D=-4\text{A}$, $V_{GS}=-15\text{V}$ *	—	-2.4	-3.2	V
Forward Transfer Admittance	$ y_f $	$I_D=-4\text{A}$, $V_{DS}=-10\text{V}$ *	1.0	1.8	—	S
Input Capacitance	C_{iss}	$V_{DS}=-10\text{V}$, $V_{GS}=0$, $f=1\text{MHz}$	—	1000	—	pF
Output Capacitance	C_{oss}		—	400	—	pF
Reverse Transfer Capacitance	C_{rss}		—	70	—	pF
Turn-on Delay Time	$t_{d(on)}$		—	15	—	ns
Rise Time	t_r	$I_D=-2\text{A}$, $V_{GS}=-15\text{V}$ $R_L=15\Omega$	—	35	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	100	—	ns
Fall Time	t_f		—	60	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	$I_F=-4\text{A}$, $V_{GS}=0$	—	-0.9	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	$I_F=-4\text{A}$, $V_{GS}=0$ $di_F/dt=50\text{A}/\mu\text{s}$	—	300	—	ns

*Pulse Test

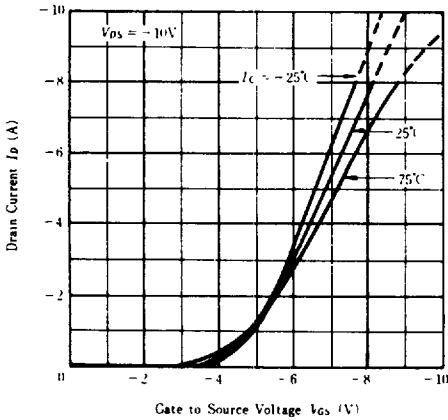
MAXIMUM SAFE OPERATION AREA



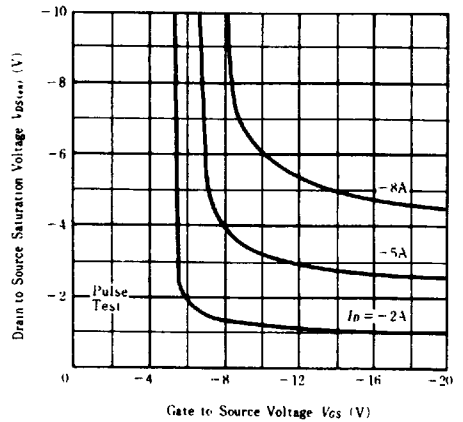
TYPICAL OUTPUT CHARACTERISTICS



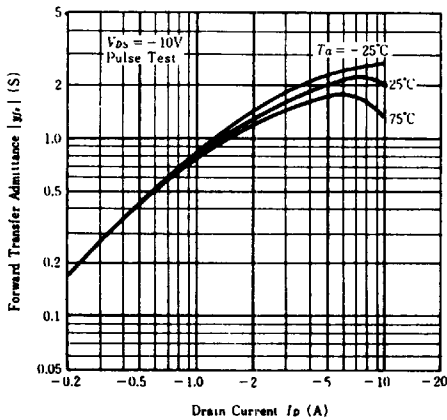
TYPICAL TRANSFER CHARACTERISTICS



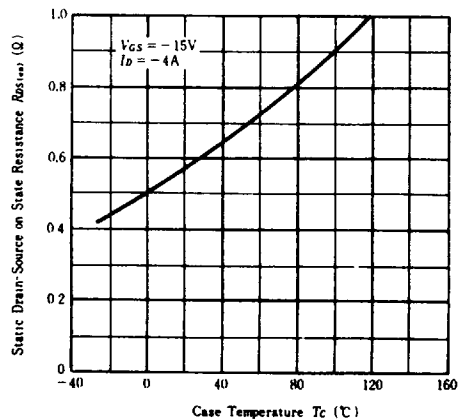
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



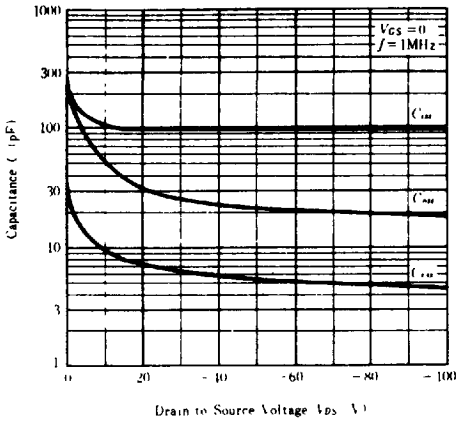
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



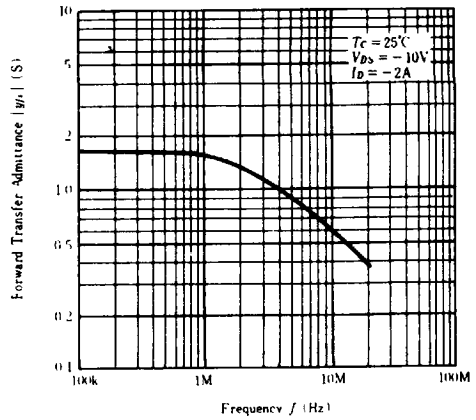
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



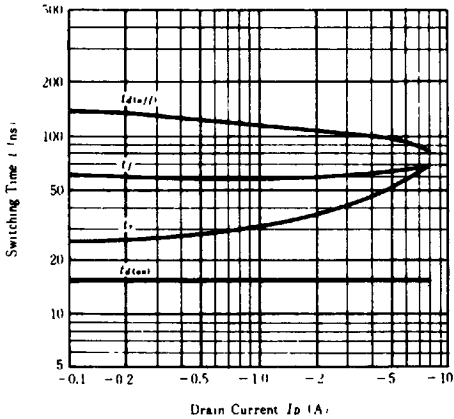
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



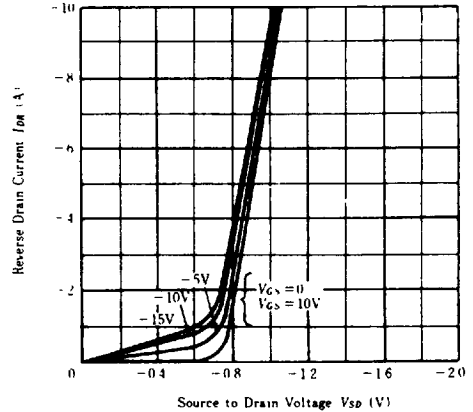
FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



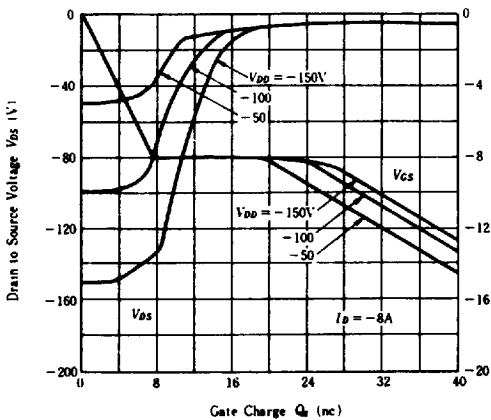
SWITCHING CHARACTERISTICS



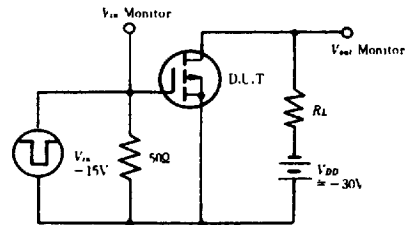
MAXIMUM BODY-DRAIN DIODE FORWARD VOLTAGE



DYNAMIC INPUT CHARACTERISTICS



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

