

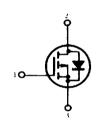
HITACHI/(OPTOELECTRONICS) HIF D

SILICON P-CHANNEL MOS FET

HIGH SPEED POWER SWITCHING. HIGH FREQUENCY POWER AMPLIFIER

■ FEATURES

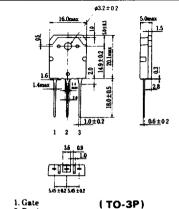
- Low On-Resistance.
- High Speed Switching.
- High Cutoff Frequency.
- No Secondary Breakdown.
- Suitable for Switching Regulator, DC-DC Converter, Motor Control, and Ultrasonic Power Oscillators



B ABSOLUTE MAXIMUM RATINGS $(T_a=25 \, ^{\circ}\text{C})$

Item	Symbol	Rating	Unit
Drain-Source Voltage	Voss	-200	v
Gate-Source Voltage	Voss	±20	v
Drain Current	I _D	-8	A
Drain Peak Current	I _{Diprek}	-12	A
Body-Drain Diode Reverse Drain Current	IDR	-8	A
Channel Dissipation	P _{th} *	100	w
Channel Temperature	T.h	150	°C
Storage Temperature	Tug	-55 ~ +150	°C

^{*}Value at T, =25 °C



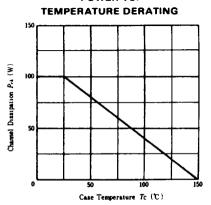
1. Gate 2. Drain

(Flange)

3. Source

(Dimensions in mm)

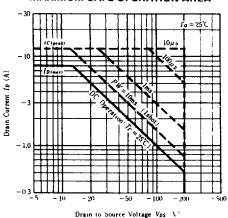




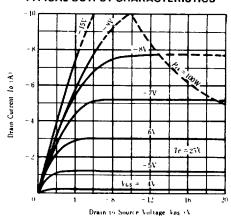
■ ELECTRICAL CHARACTERISTICS (T_e=25 °C)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	$I_D=-10$ mA, $V_{GS}=0$	-200	_		V
Gate-Source Leak Current	Ioss	$V_{os}=\pm 20$ V, $V_{os}=0$	-		1±	μA
Zero Gate Voltage Drain Current	Ipss	$V_{DS} = -160 \text{V}, V_{CS} = 0$	T -		-1	m A
Gate-Source Cutoff Voltage	Vosem	$I_D=-1$ mA, $V_{DS}=-10$ V	-2.0	_	-5.0	v
Static Drain-Source On State Resistance	R _{DS(on)}	$I_D = -4A$. $V_{GS} = -15V^*$	_	0.6	0.8	Ω
Drain-Source Saturation Voltage	V _{DSon}	$I_D = -4A$. $V_{GS} = -15V^*$		-2.4	-3.2	V
Forward Transfer Admittance	W/-	$I_D = -4A$, $V_{DS} = -10V^*$	1.0	1.8	_	S
Input Capacitance	Cres		_	1000		pF
Output Capacitance	Coss	$V_{DS} = -10 \text{V}, \ V_{GS} = 0, f = 1 \text{MHz}$		400		pF
Reverse Transfer Capacitance	Crss		_	70		рF
Turn-on Delay Time	takoni		T	15	_	ns
Rise Time	t,	$I_D = -2A$, $V_{LS} = -15V$ $R_L = 15\Omega$	_	35		ns
Turn-off Delay Time	t _{eko(f)}			100	_	ns
Fall Time	t _f		_	60		ns
Body-Drain Diode Forward Voltage	V _{DF}	$I_{F}=-4A$, $V_{GS}=0$	_	-0.9	_	V
Body-Drain Diode Reverse Recovery Time	t,,	$I_F = -4A$, $V_{GS} = 0$ $di_F/dt = 50A/\mu s$	_	300	_	ns

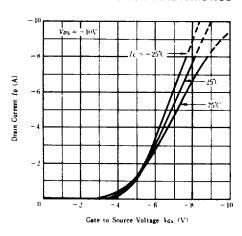
MAXIMUM SAFE OPERATION AREA



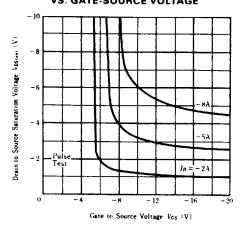
TYPICAL OUTPUT CHARACTERISTICS



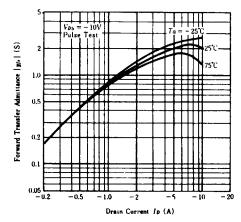
TYPICAL TRANSFER CHARACTERISTICS



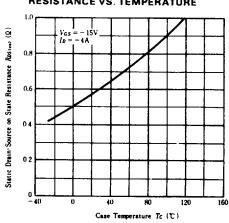
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



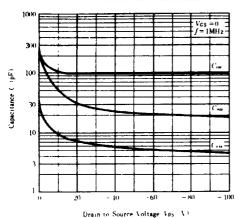
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



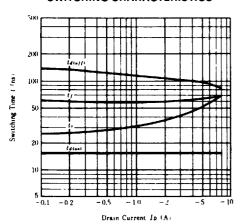
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



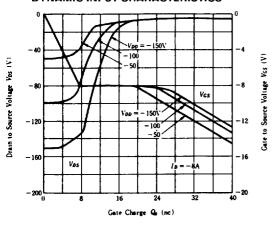
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



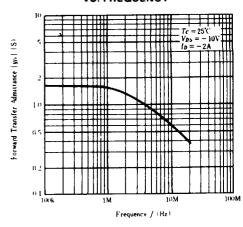
SWITCHING CHARACTERISTICS



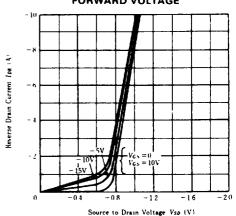
DYNAMIC INPUT CHARACTERISTICS



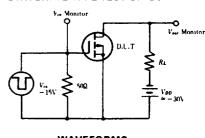
FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



MAXIMUM BODY-DRAIN DIODE FORWARD VOLTAGE



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

