HITACHI

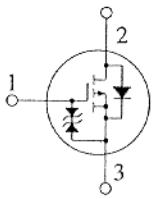
2SJ215

SILICON P-CHANNEL MOS FET

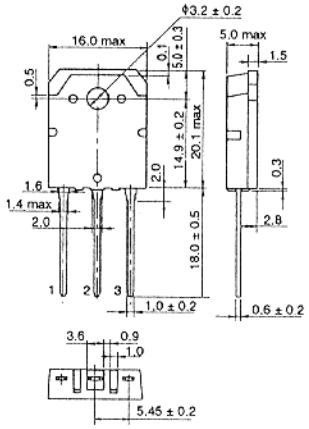
HIGH SPEED POWER SWITCHING

■FEATURES

- Low On-Resistance
- High Speed Switchin
- Low Drive Current
- 4 V Gate Drive Device
  – Can be driven from 5V source
- Suitable for Motor Drive, DC-DC Converter, Power Switch and Solenoid Drive



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



(TO-3P)

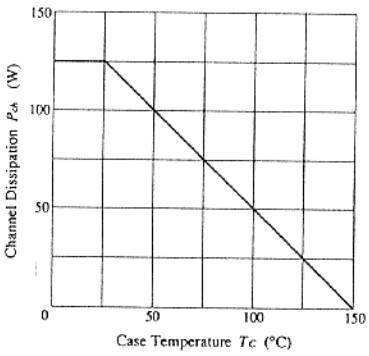
■ABSOLUTE MAXIMUM RATINGS (Ta = 25℃)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-60	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	I_D	-35	A
Drain Peak Current	I_D (pulse)*	-140	A
Body-Drain Diode Reverse Drain Current	I_{DR}	-35	A
Channel Dissipation	Pch**	125	W
Channel Temperature	Tch	150	℃
Storage Temperature	Tstg	-55~+150	℃

* PW≦10 μs, duty cycle≦1%

** Value at Tc=25℃

POWER VS. TEMPERATURE DERATING

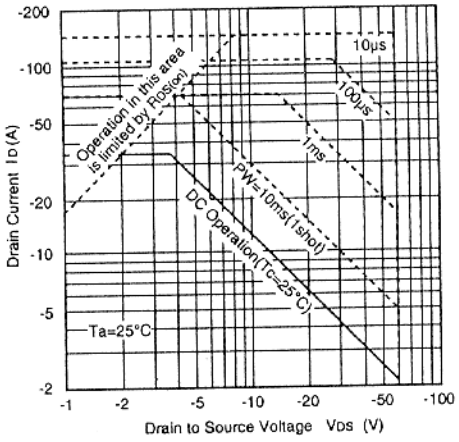


■ELECTRICAL CHARACTERISTICS (Ta = 25℃)

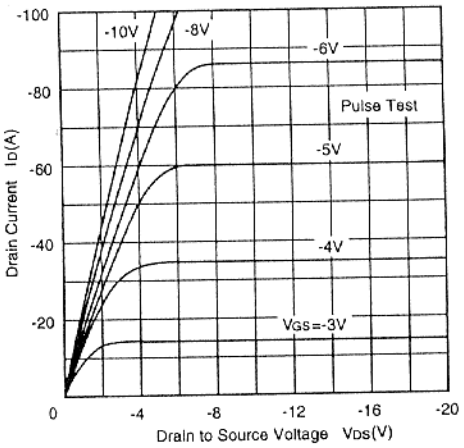
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = -10mA, V_{GS} = 0	-60	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	I_G = ±100 μA, V_{DS} = 0	±20	—	—	V
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±16V, V_{DS} = 0	—	—	±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -50V, V_{GS} = 0	—	—	-250	μA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	I_D = -1mA, V_{DS} = -10V	-1.0	—	-2.0	V
Static Drain-Source on State Resistance	$R_{DS(on)}$	I_D = -18A, V_{GS} = -10V*	—	0.045	0.06	Ω
		I_D = -18A, V_{GS} = -4V*	—	0.07	0.09	
Forward Transfer Admittance	$\|y_{fs}\|$	I_D = -18A, V_{DS} = -10V*	11	18	—	S
Input Capacitance	Ciss	V_{DS} = -10V, V_{GS} = 0	—	2400	—	pF
Output Capacitance	Coss	f = 1MHz	—	1300	—	pF
Reverse Transfer Capacitance	Crss		—	340	—	pF
Turn-On Delay Time	$t_{d(on)}$	I_D = -15A, V_{GS} = -10V R_L = 2Ω	—	20	—	ns
Rise Time	t_r		—	175	—	ns
Turn-Off Delay Time	$t_{d(off)}$		—	460	—	ns
Fall Time	t_f		—	320	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	I_F = -35A, V_{GS} = 0	—	-1.3	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	I_F = -35A, V_{GS} = 0 di_F/dt = 50A/μs	—	250	—	ns

* Pulse Test

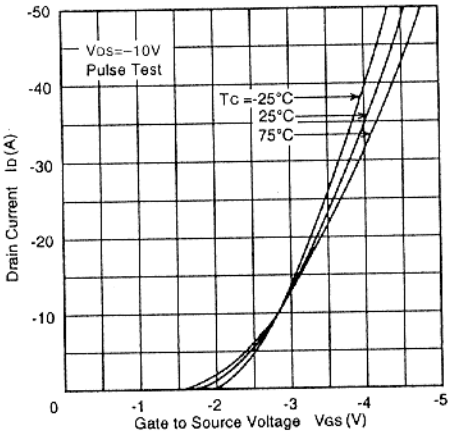
MAXIMUM SAFE OPERATION AREA



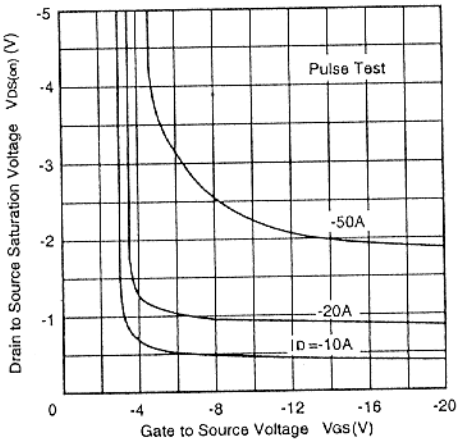
TYPICAL OUTPUT CHARACTERISTICS



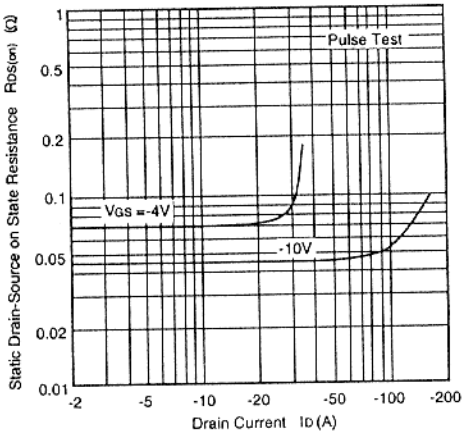
TYPICAL TRANSFER CHARACTERISTICS



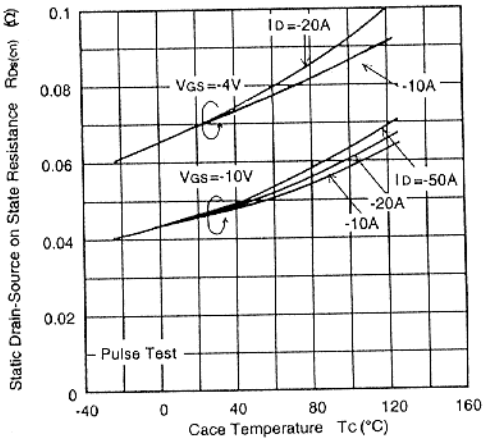
DRAIN TO SOURCE SATURATION VOLTAGE VS. GATE TO SOURCE VOLTAGE



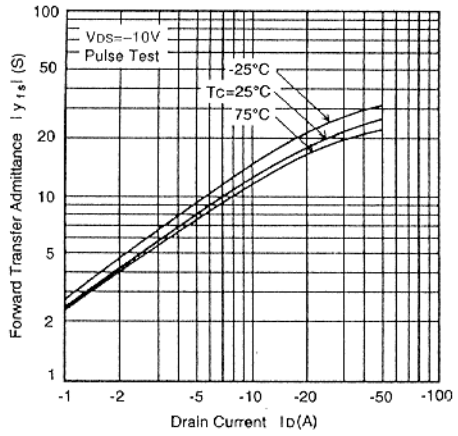
STATIC DRAIN TO SOURCE ON STATE RESISTANCE VS. DRAIN CURRENT



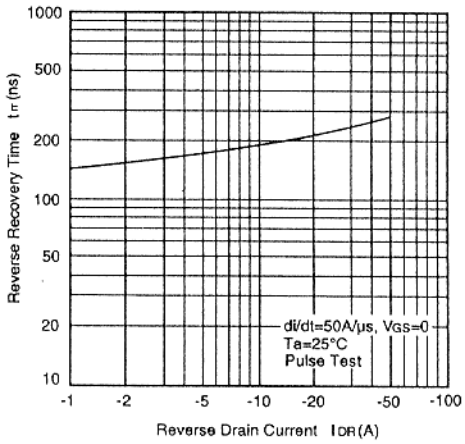
STATIC DRAIN TO SOURCE ON STATE RESISTANCE VS. TEMPERATURE



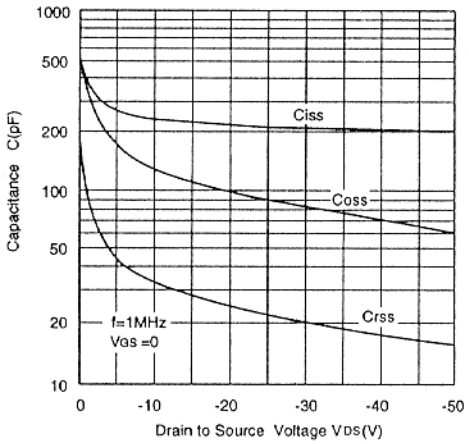
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



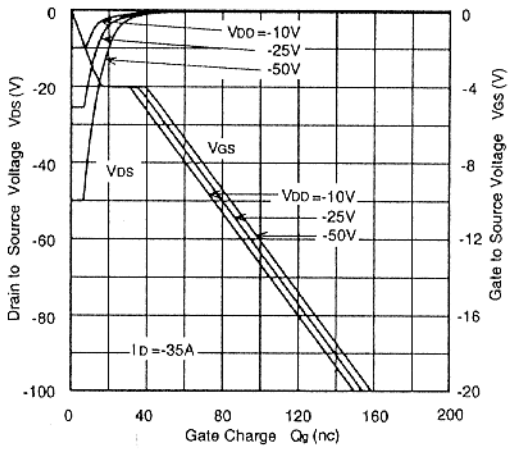
BODY – DRAIN DIODE REVERSE RECOVERY TIME



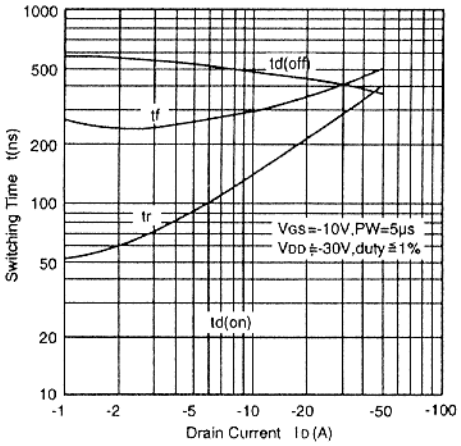
TYPICAL CAPACITANCE VS. DRAIN TO SOURCE VOLTAGE



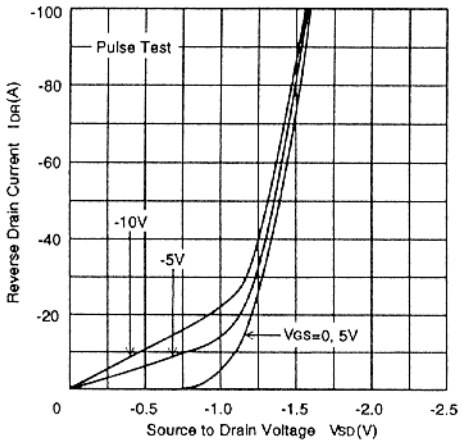
DYNAMIC INPUT CHARACTERISTICS



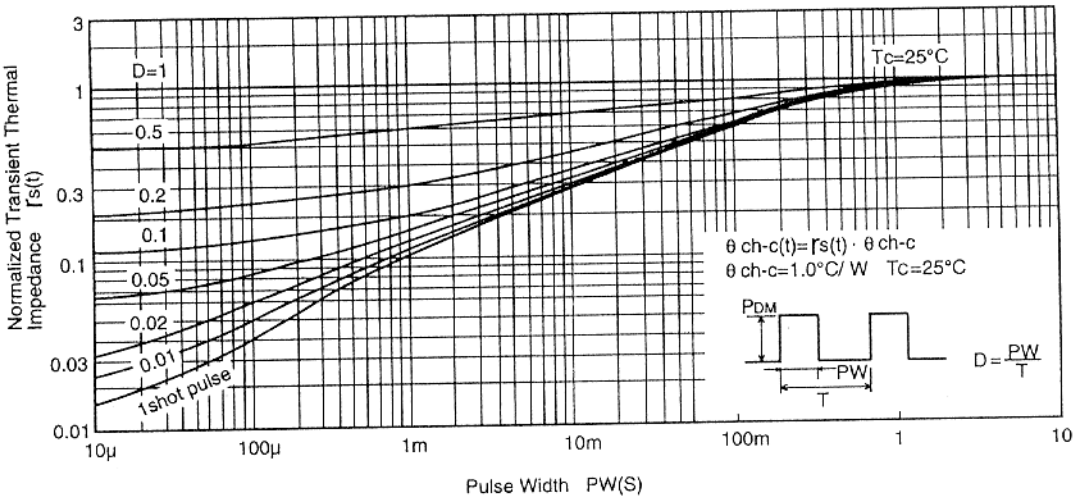
SWITCHING CHARACTERISTICS



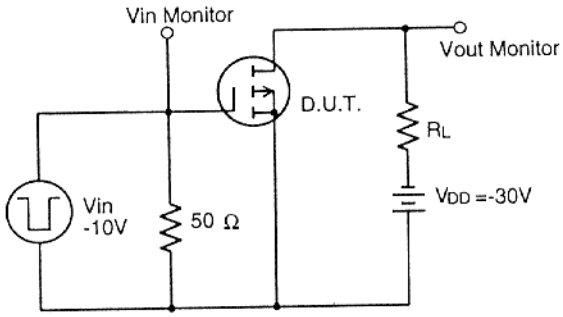
REVERSE DRAIN CURRENT VS. SOURCE TO DRAIN VOLTAGE



NORMALIZED TRANSIENT THERMAL IMPEDANCE VS. PULSE WIDTH



SWITCHING TIME TEST CIRCUIT



SWITCHING TIME TEST WAVEFORMS