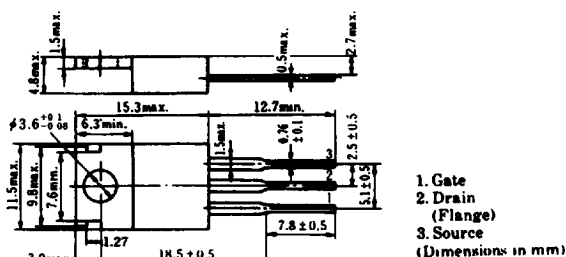
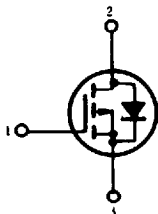


SILICON P CHANNEL MOS FET

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

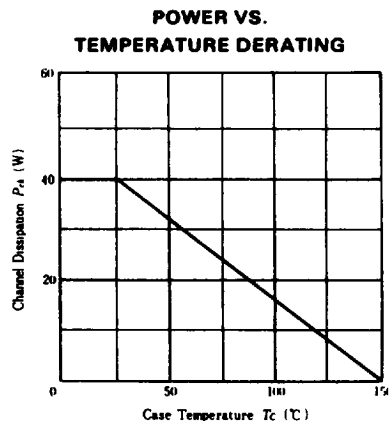


(JEDEC TO-220AB)

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

Item	Symbol	2SJ171	Unit
Drain-Source Voltage	V_{DS}	-50	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	I_D	-9.7	A
Drain Peak Current	$I_{D(\text{pulse})}^*$	-39	A
Body-Drain Diode Reverse Drain Current	I_{DR}	-9.7	A
Channel Dissipation	P_{ch}^{**}	40	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

* $PW \leq 10 \mu\text{s}$, duty cycle $\leq 1\%$
 ** Value at $T_c = 25^\circ\text{C}$

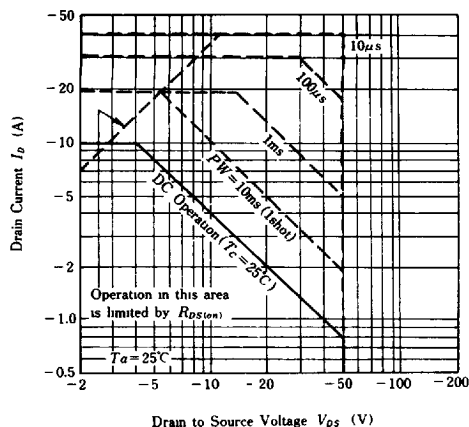


ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

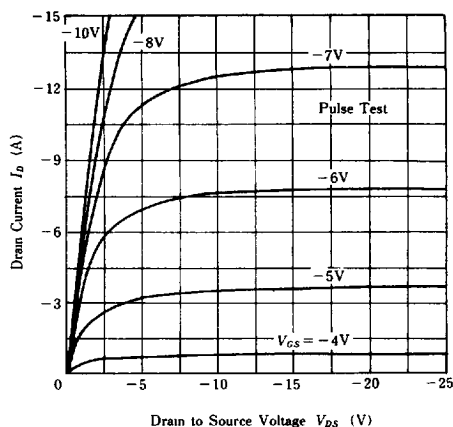
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$I_D = -250 \mu\text{A}$, $V_{GS} = 0$	-50	—	—	V
Gate-Source Leak Current	I_{GSS}	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0$	—	—	± 0.5	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -50\text{V}$, $V_{GS} = 0$	—	—	-250	μA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D = -250 \mu\text{A}$, $V_{DS} = V_{GS}$	-2.0	—	-4.0	V
Static Drain-Source on State Resistance	$R_{DS(on)}$	$I_D = -5.6\text{A}$, $V_{GS} = -10\text{V}^*$	—	0.2	0.28	Ω
Forward Transfer Admittance	$ y_{fs} $	$I_D = -5.6\text{A}$, $V_{DS} = -10\text{V}^*$	2.3	3.5	—	S
Input Capacitance	C_{iss}	$V_{DS} = -25\text{V}$, $V_{GS} = 0$ $f = 1\text{MHz}$	—	480	—	pF
Output Capacitance	C_{oss}		—	320	—	pF
Reverse Transfer Capacitance	C_{rss}		—	58	—	pF
Turn-On Delay Time	$t_{d(on)}$	$I_D = -9.7\text{A}$, $V_{GS} = -10\text{V}$ $R_L = 3.1 \Omega$, $R_s = 50 \Omega$ $V_{DD} = -30\text{V}$	—	12	—	ns
Rise Time	t_r		—	200	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	20	—	ns
Fall Time	t_f		—	50	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	$I_F = -9.7\text{A}$, $V_{GS} = 0$	—	—	-6.3	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	$I_F = -9.7\text{A}$, $V_{GS} = 0$ $di_F/dt = 50\text{A}/\mu\text{s}$	—	110	—	ns

* Pulse Test

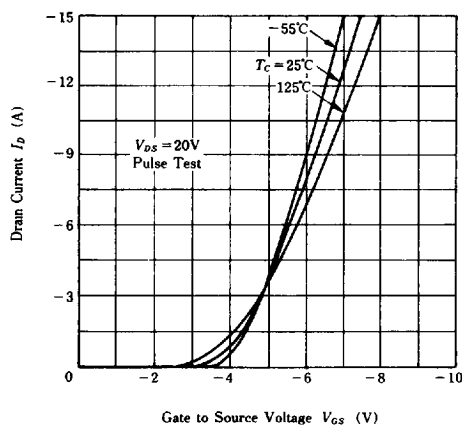
MAXIMUM SAFE OPERATION AREA



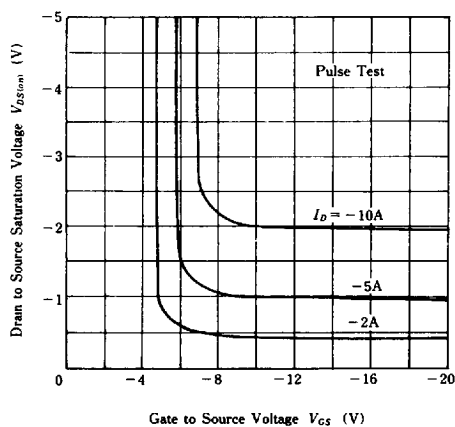
TYPICAL OUTPUT CHARACTERISTICS



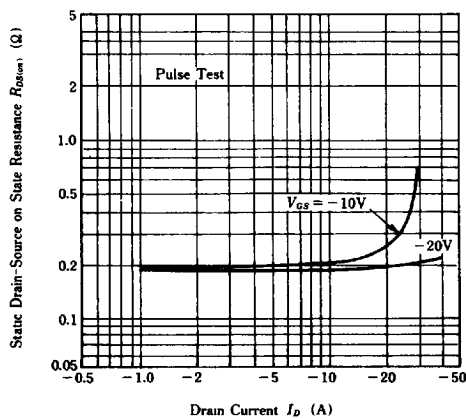
TYPICAL TRANSFER CHARACTERISTICS



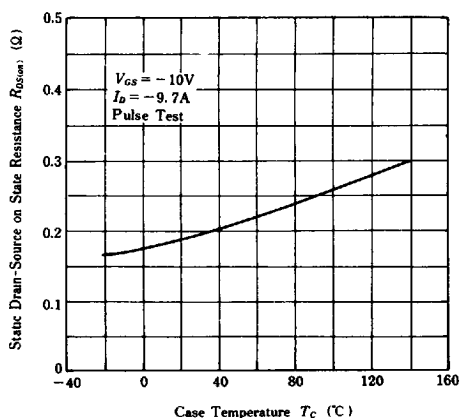
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



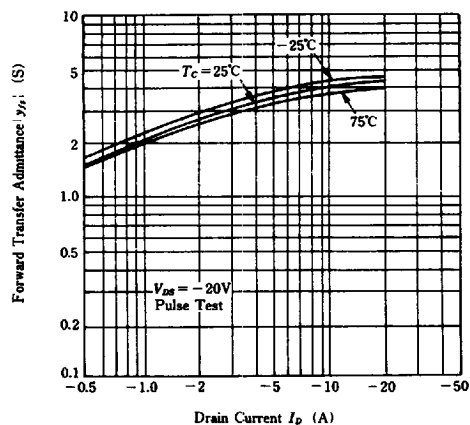
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. DRAIN CURRENT



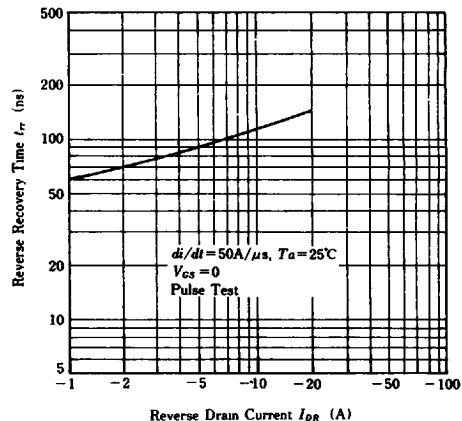
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



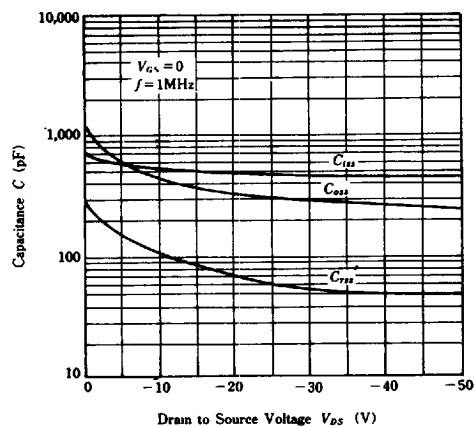
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



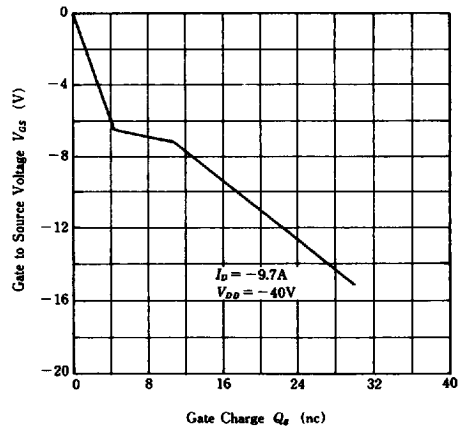
BODY DRAIN DIODE REVERSE RECOVERY TIME



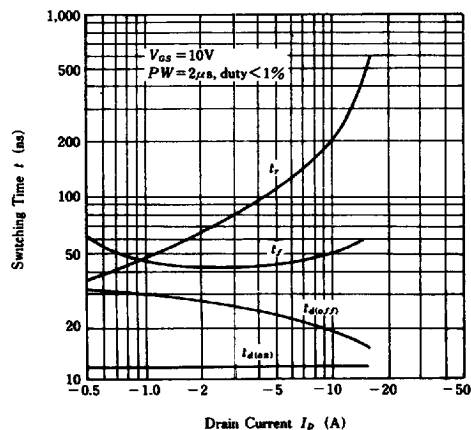
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



DYNAMIC INPUT CHARACTERISTICS



SWITCHING CHARACTERISTICS



REVERSE DRAIN CURRENT VS. SOURCE TO DRAIN VOLTAGE

