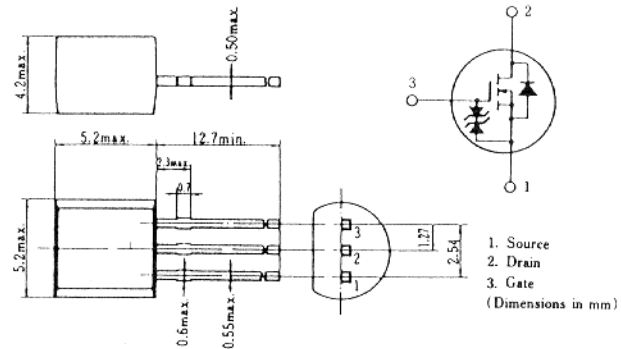


## 2SK1337

### SILICON N-CHANNEL MOS FET HIGH SPEED POWER SWITCHING

#### ■ FEATURES

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



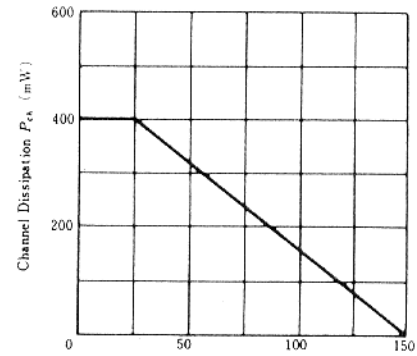
(JEDEC TO-92)

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

Item	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current	$I_D$	0.3	A
Drain Peak Current	$I_{D(\text{peak})}^*$	1.2	A
Body-Drain Diode Reverse Drain Current	$I_{DR}$	0.3	A
Channel Dissipation	$P_{ch}$	400	mW
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	$-55 \sim +150$	$^\circ\text{C}$

\*PW $\leq 10\mu\text{s}$ , duty cycle $\leq 1\%$

#### POWER VS. TEMPERATURE DERATING

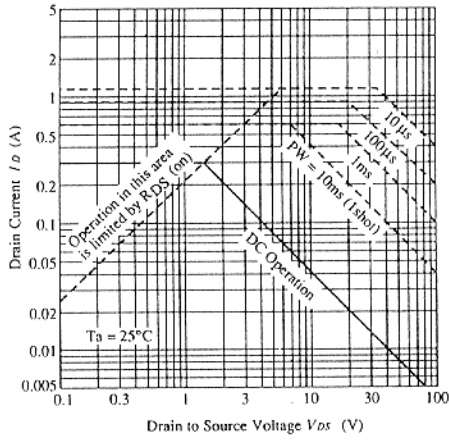


#### ■ ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

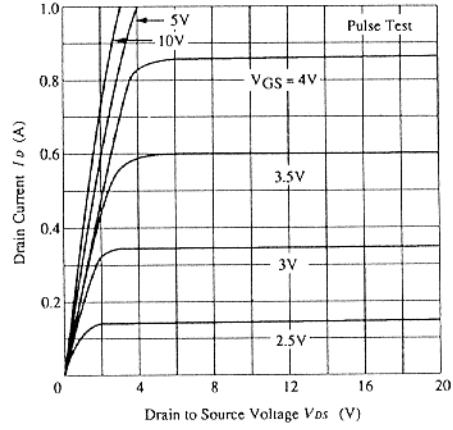
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR),DS}$	$I_D=10\text{mA}$ , $V_{GS}=0$	100	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR),GS}$	$I_G=\pm 100\mu\text{A}$ , $V_{DS}=0$	$\pm 20$	—	—	V
Gate-Source Leak Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}$ , $V_{DS}=0$	—	—	$\pm 10$	$\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=80\text{V}$ , $V_{GS}=0$	—	—	50	$\mu\text{A}$
Gate-Source Cutoff Voltage	$V_{GS(\text{off})}$	$I_D=1\text{mA}$ , $V_{DS}=10\text{V}$	1.0	—	2.0	V
Static Drain-Source on State Resistance	$R_{DS(\text{on})}$	$I_D=0.2\text{A}$ , $V_{GS}=10\text{V}^*$	—	3.5	4.5	$\Omega$
		$I_D=0.2\text{A}$ , $V_{GS}=4\text{V}^*$	—	4.0	6.5	
Forward Transfer Admittance	$ y_{fs} $	$I_D=0.2\text{A}$ , $V_{DS}=10\text{V}^*$	0.22	0.35	—	S
Input Capacitance	$C_{iss}$	$V_{DS}=10\text{V}$ , $V_{GS}=0$ , $f=1\text{MHz}$	—	35	—	$\mu\text{F}$
Output Capacitance	$C_{oss}$		—	14	—	$\mu\text{F}$
Reverse Transfer Capacitance	$C_{rss}$		—	3.5	—	$\mu\text{F}$
Turn-on Delay Time	$t_{d(\text{on})}$		—	2	—	ns
Rise Time	$t_r$	$I_D=0.2\text{A}$ , $V_{GS}=10\text{V}$ , $R_L=150\Omega$	—	4	—	ns
Turn-off Delay Time	$t_{d(\text{off})}$		—	17	—	ns
Fall Time	$t_f$		—	15	—	ns
Body-Drain Diode Forward Voltage	$V_{DF}$	$I_F=0.3\text{A}$ , $V_{GS}=0$	—	0.9	—	V
Body-Drain Diode Reverse Recovery Time	$t_{rr}$	$I_F=0.3\text{A}$ , $V_{GS}=0$ , $di_F/dt=50\text{A}/\mu\text{s}$	—	80	—	ns

\* Pulse Test

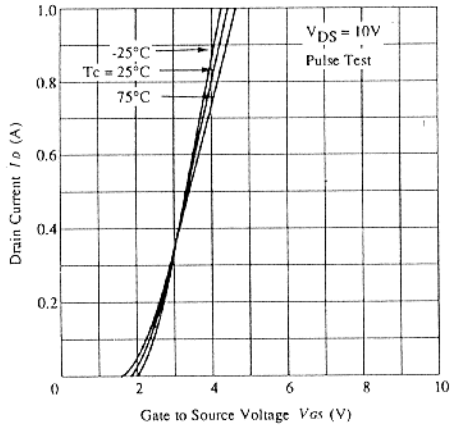
### MAXIMUM SAFE OPERATION AREA



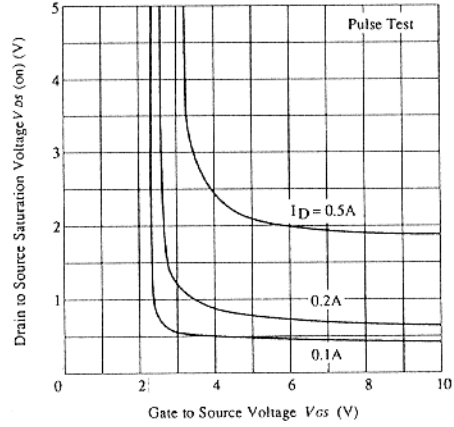
### TYPICAL OUTPUT CHARACTERISTICS



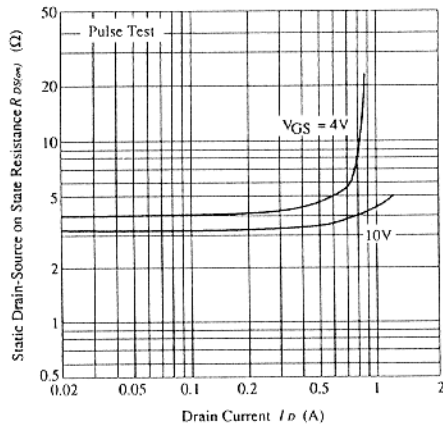
### TYPICAL TRANSFER CHARACTERISTICS



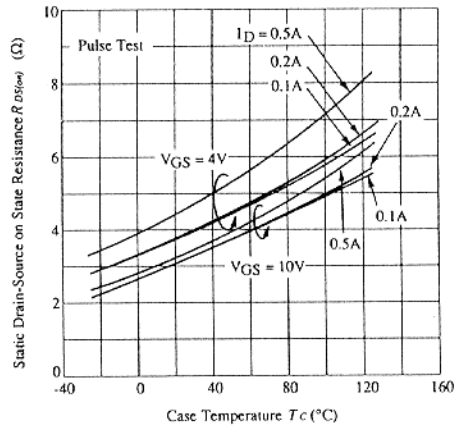
### DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



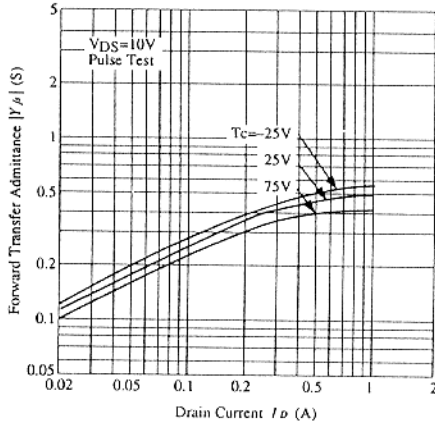
### STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. DRAIN CURRENT



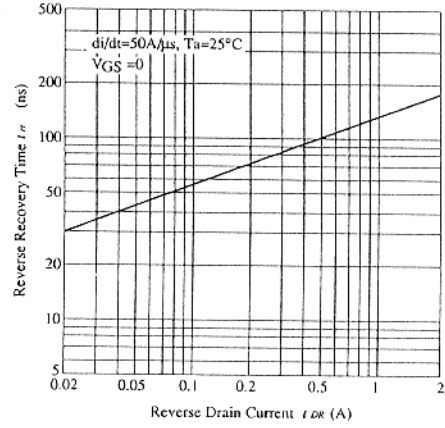
### STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



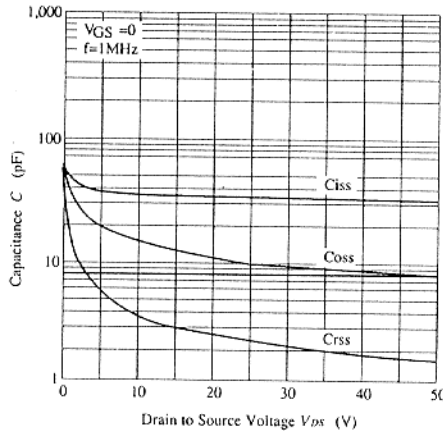
**FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT**



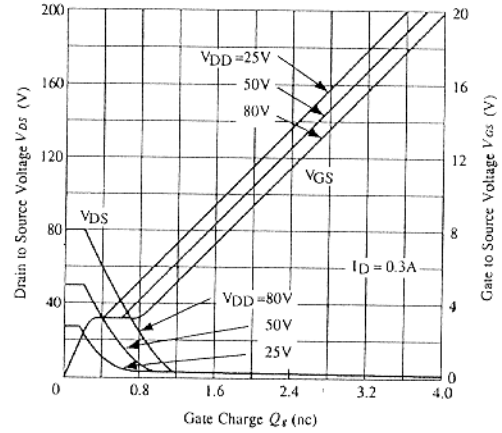
**BODY-DRAIN DIODE REVERSE RECOVERY TIME**



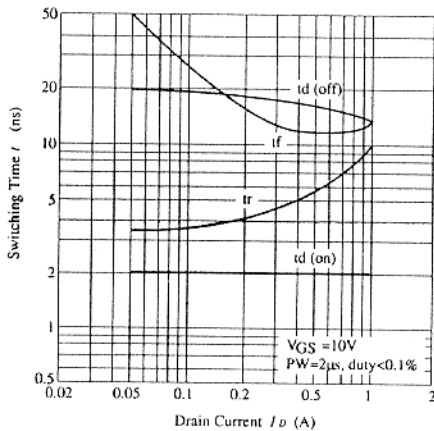
**TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE**



**DYNAMIC INPUT CHARACTERISTICS**



**SWITCHING CHARACTERISTICS**



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

