

N-CHANNEL MOS FIELD EFFECT POWER TRANSISTOR

2SK736

DESCRIPTION The 2SK736 is N-Channel MOS Field Effect Power Transistor designed for solenoid, motor and lamp driver.

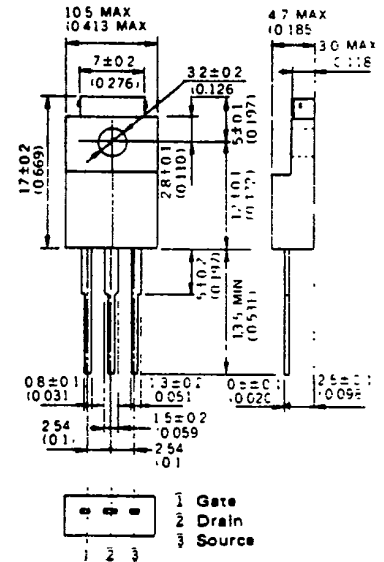
- FEATURES**
- Gate Drive – Logic level –
 - Low $R_{DS(on)}$
 - No Secondary Breakdown

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures	
Storage Temperature	-55 to +150 °C
Channel Temperature	150 °C Maximum
Maximum Power Dissipations	
Total Power Dissipation ($T_a = 25\text{ °C}$)	2.0 W
Total Power Dissipation ($T_c = 25\text{ °C}$)	35 W
Maximum Voltages and Currents ($T_a = 25\text{ °C}$)	
V_{DS} Drain to Source Voltage	100 V
V_{GS} Gate to Source Voltage	±20 V
$I_{D(DC)}$ Drain Current (DC)	±15 A
$I_{D(pulse)}$ Drain Current (pulse)*	±60 A

*PW ≤ 300 μs, Duty Cycle ≤ 10 %

PACKAGE DIMENSIONS
in millimeters (inches)

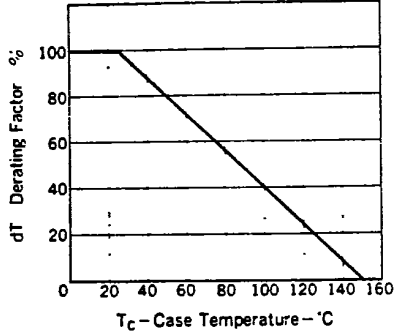


ELECTRICAL CHARACTERISTICS ($T_a = 25\text{ °C}$)

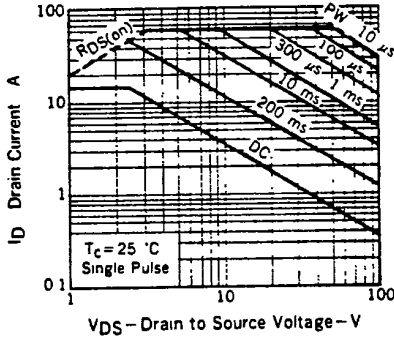
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$R_{DS(on)}$	Drain to Source On-State Resistance			0.08	Ω	$V_{GS} = 10\text{ V}, I_D = 6\text{ A}$
$R_{DS(on)}$	Drain to Source On-State Resistance			0.10	Ω	$V_{GS} = 4\text{ V}, I_D = 6\text{ A}$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	1.0		2.5	V	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$
$ y_{fs} $	Forward Transfer Admittance	5.0			S	$V_{DS} = 10\text{ V}, I_D = 6\text{ A}$
I_{DSS}	Drain Leakage Current			10	μA	$V_{DS} = 100\text{ V}, V_{GS} = 0$
I_{GSS}	Gate to Source Leakage Current			±100	nA	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0$
C_{iss}	Input Capacitance		2400		pF	$V_{DS} = 10\text{ V}$
C_{oss}	Output Capacitance		600		pF	$V_{GS} = 0$
C_{rss}	Reverse Transfer Capacitance		100		pF	$f = 1\text{ MHz}$
$t_{d(on)}$	Turn On Delay Time		15		ns	
t_r	Rise Time		70		ns	$I_D = 6\text{ A}, V_{CC} \approx 50\text{ V}$
$t_{d(off)}$	Turn Off Delay Time		250		ns	$R_L = 5\ \Omega$
t_f	Fall Time		160		ns	$R_{in} = 10\ \Omega$

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

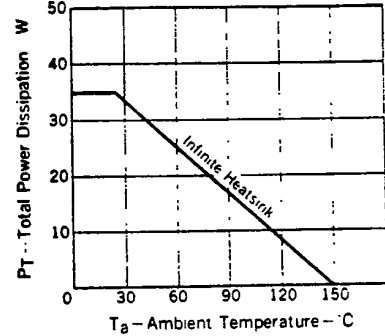
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



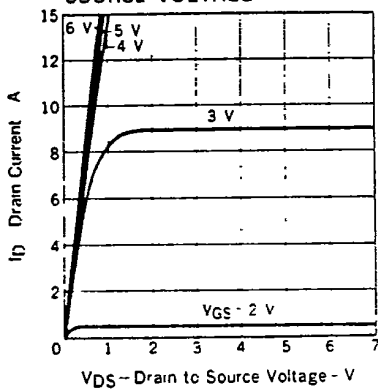
FORWARD BIAS SAFE OPERATING AREA



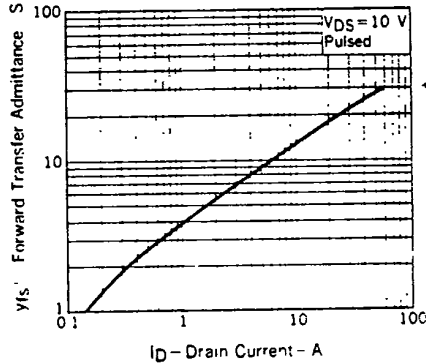
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



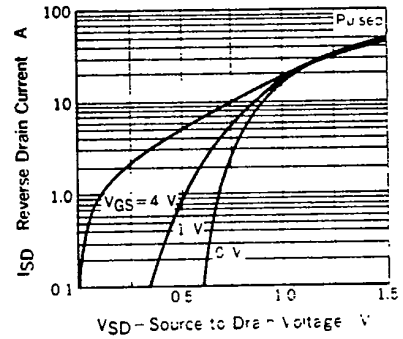
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



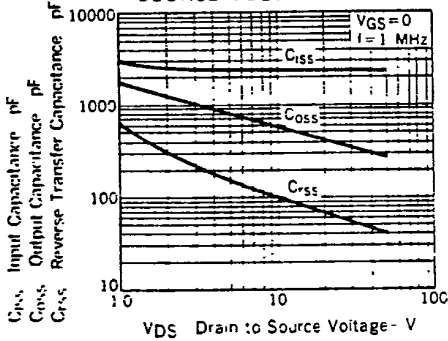
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



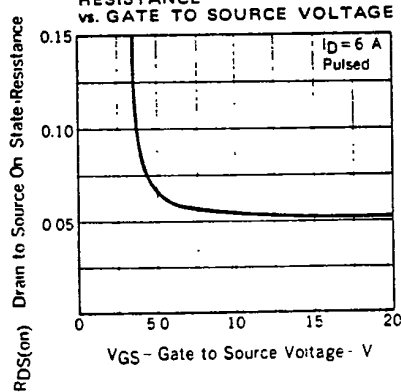
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



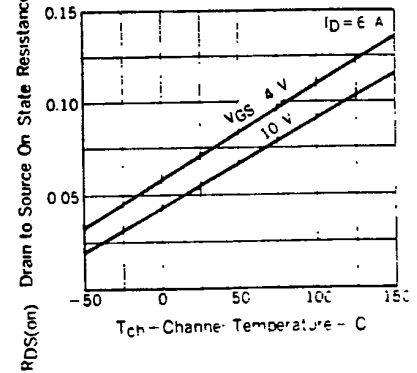
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE

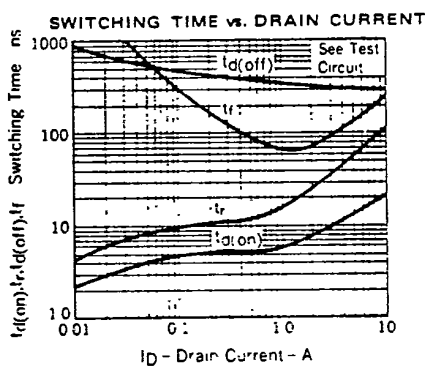
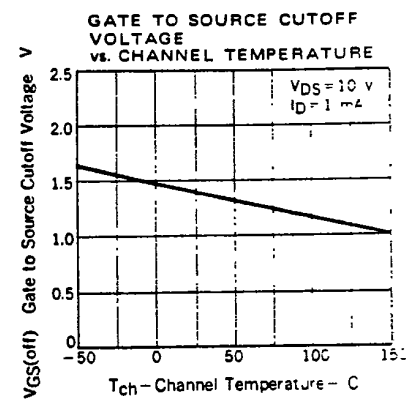
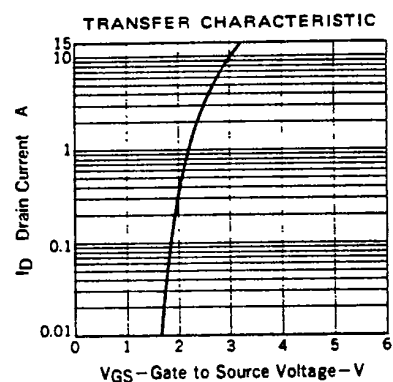
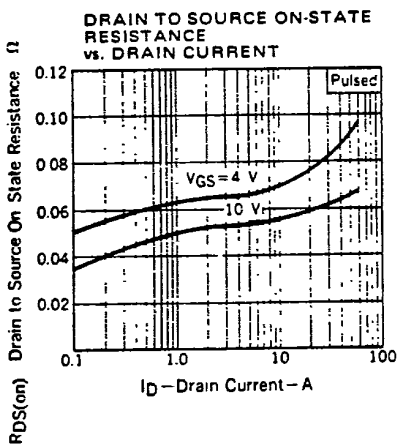


DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE





SWITCHING TIME TEST CIRCUIT

