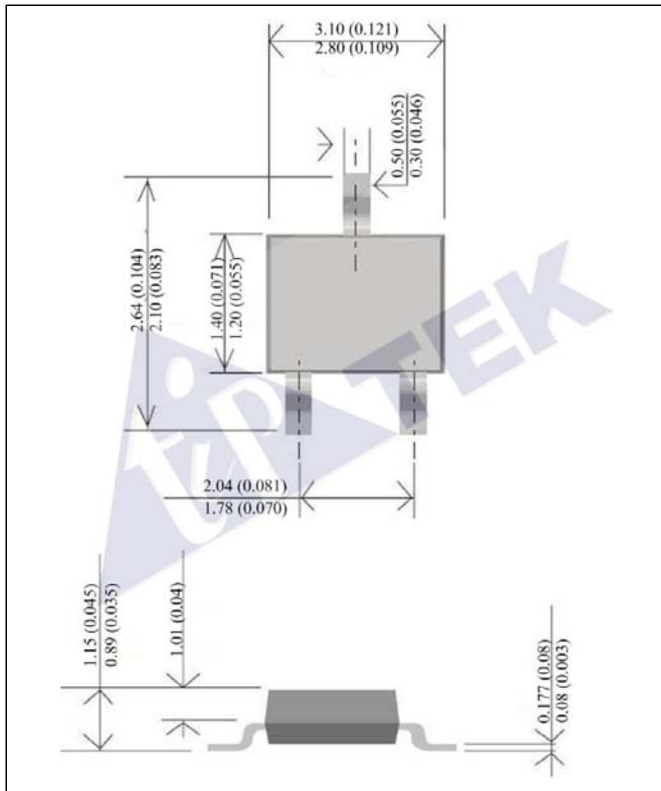
N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR



CASE：SOT-23

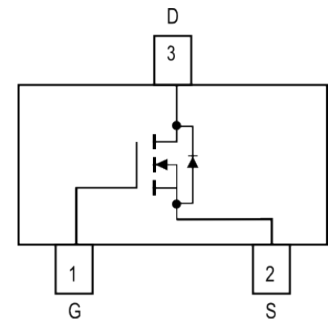
DIMENSIONS IN MILLIMETERS AND (INCHES)

FEATURES

- N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR,DESIGNED FOR HIGH SPEED PULSE AMPLIFIER AND DRIVE APPLICATION,WHICH IS MANUFACTURED BY THE N-CHANNEL DMOS PROCESS.
- BOTH PB FREE AND HALOGEN FREE PRODUCT ARE AVAILABLE

MECHANICAL DATA

- CASE: SOT-23
- TERMINALS：SOLDERABLE PER MIL-STD-202, METHOD208
- APPROX. WEIGHT:0.008 GRAM
- Pb Free: 2SK801
  Halogen Free: 2SK801-H



ABSOLUTE MAXIMUM RATINGS

RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED.

PATING	SYMBOL	VALUE	UNITS
DRAIN-SOURCE VOLTAGE	V_{DSS}	60	V
DRAIN-GATE VOLTAGE(R_{GS}=1.0MΩ)	V_{DGR}	60	V
GATE-SOURCE VOLTAGE - CONTINUOUS	V_{GSS}	±20	V
GATE-SOURCE VOLTAGE - NON-REPETITIVE (t_P<50us)	V_{GSM}	±40	V
MAXIMUM DRAIN CURRENT-CONTINUE	I_D	310	mA
MAXIMUM DRAIN CURRENT-PULSE (t<10us)	I_{DM}	1200	mA
MAXIMUM POWER DISSIPATION DERATING (NOTE 2)	P_D	225	mW
THERMAL RESISTANCE – JUNCTION TO AMBIENT(NOTE 2)	$R_{\theta JA}$	556	℃/W
MAXIMUM POWER DISSIPATION DERATING (NOTE 3)	P_D	300	mW
THERMAL RESISTANCE – JUNCTION TO AMBIENT(NOTE 3)	$R_{\theta JA}$	417	℃/W
OPERATING AND STORAGE JUNCTION TEMPERATURE RANGE	T_J;T_{STG}	- 55 TO +150	℃

NOTE: 1. THE POWER DISSIPATION OF THE PACKAGE MAY RESULT IN A LOWER CONTINUOUS DRAIN CURRENT.
2. FR-5 = 1.0x0.75x0.062 in.
3. ALUMINA = 0.4x0.3x0.025 in 99.5% ALUMINA.

ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS (AT T_A =25°C UNLESS OTHERWISE NOTED)						
CHARACTERISTIC		SYMBOL	MIN	TYP	MAX	UITS
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	V_{GS} =0V, I_D =10μA	$V_{(BR)DSS}$	60	–	–	V
Zero Gate Voltage Drain	V_{DS} =60V, V_{GS} =0V, T_J =25°C	I_{DSS}	–	–	1.0	μA
	V_{DS} =60V, V_{GS} =0V, T_J =125°C				500	
Gate-Body Leakage, Forward (V_{DS}=0, V_{GS} =20V)		I_{GSSF}	–	–	+100	nA
Gate-Body Leakage, Reverse (V_{DS}=0, V_{GS} =-20V)		I_{GSSR}	–	–	-100	nA
ON CHARACTERISTICS (NOTE 1)						
Gate Threshold Voltage(V_{DS} = V_{GS}, I_D =250μA)		$V_{GS(th)}$	1	1.8	2.2	V
Drain-Source On- Resistance	V_{GS}=10V, I_D=500mA	$R_{DS(ON)}$	–	1.5	2.5	Ω
	V_{GS}=5.0V, I_D=50mA		–	1.7	2.5	
On-State Drain Current(V_{GS}=10V, $V_{DS} \geqq 2V_{DS(ON)}$)		$I_{D(ON)}$	500	–	–	mA
Static Drain-Sourse On-State Voltage	V_{GS}=10V, I_D=500mA	$V_{DS(on)}$	–	–	3.75	V
	V_{GS}=5.0V, I_D=50mA		–	–	0.375	
BODY-DRAIN DIODE RATINGS						
Source Current Continuous		I_S	–	–	-115	mA
Source Current Pulsed		I_{SM}	–	–	-800	mA
Diode Forward Voltage (I_S=115mA, V_{GS} =0V)		V_{SD}	–	–	-1.5	V
DYNAMIC CHARACTERISTICS						
Input Capacitance	V_{DS}=25V, V_{GS}=0V, F=1.0MHz	C_{ISS}	–	17	50	pF
Output Capacitance		C_{OSS}	–	10	25	pF
Reverse Transfer Capacitance		C_{RSS}	–	2.5	5	pF
Turn-On Time	V_{DD}=25V,R_L=50Ω, I_D=500mA V_{GS}=10V, R_{GEN}=25Ω	$t_{d(on)}$	–	7	20	ns
Turn-Off Time		$t_{d(off)}$	–	11	40	ns

NOTE: 1. Pulse Test: Pulse Width <300 us, Duty Cycle <2.0%.

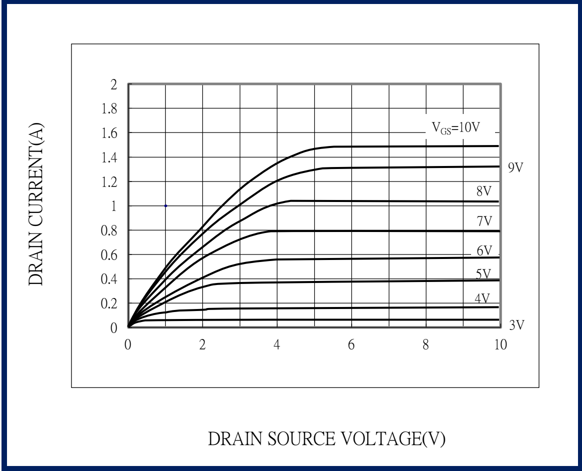


Fig.1-OHMIC REGION

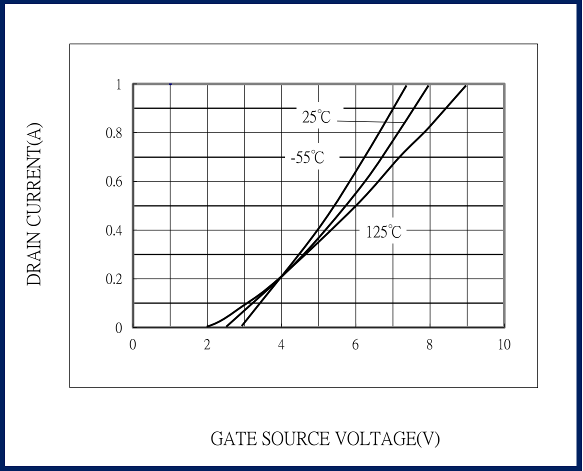


Fig.2-TRANSFER CHARACTERISTICS

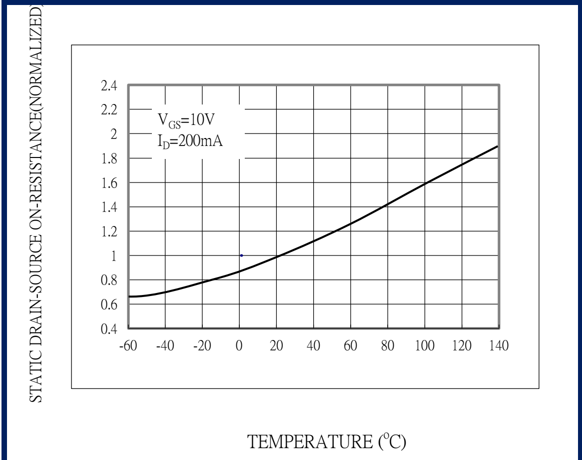


Fig.3-DRAIN SOURCE ON-RESISTANCE VS. TEMPERATURE

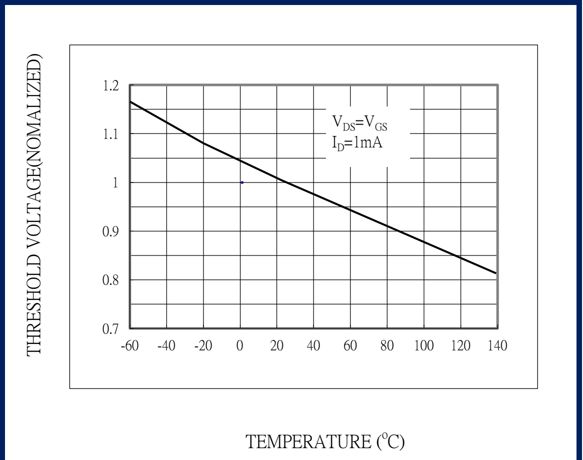


Fig.4-GATE THRESHOLD VOLTAGE VS. TEMPERATURE