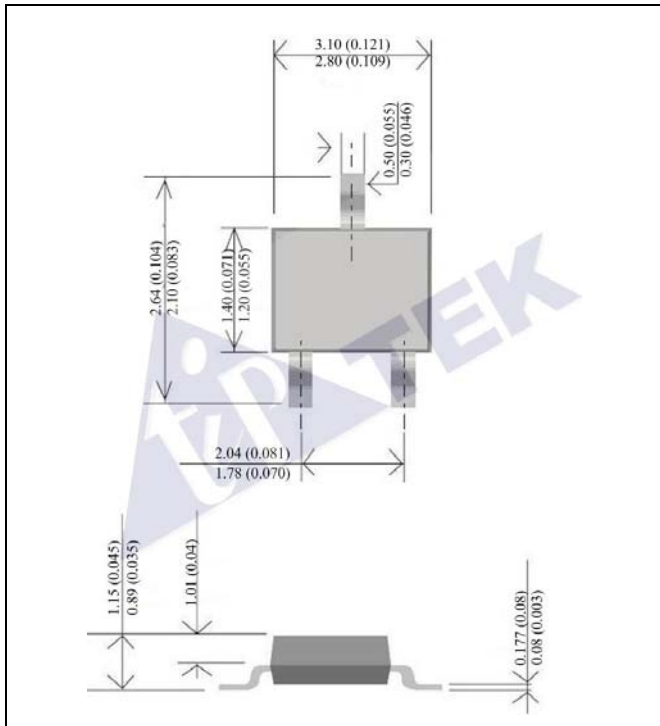


N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR



CASE : SOT-23

DIMENSIONS IN MILLIMETERS AND (INCHES)

FEATURES

- HIGH DENSITY CELL DESIGN FOR ULTRA LOW ON-RESISTANCE
- IMPROVED SHOOT-THROUGH FOM
- BOTH NORMAL AND PB FREE PRODUCT
ARE AVAILABLE :NORMAL : 80~95% SN, 5~20% PB
PB FREE: 99% SN ABOVE

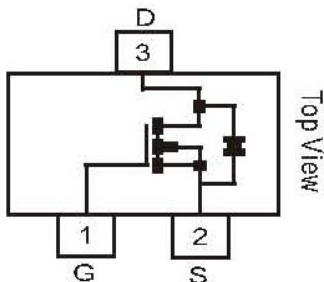
MECHANICAL DATA

- WE DECLARE THAT THE MATERIAL OF PRODUCT COMPLIANCE WITH ROHS REUIREMENTS.
- Pb Free: TP4812NR
Halogen Free: TP4812NR -H

ABSOLUTE MAXIMUM RATINGS

RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED.			
PATING	SYMBOL	VALUE	UNITS
DRAIN-SOURCE VOLTAGE	V_{DSS}	30	V
GATE-SOURCE VOLTAGE	V_{GSS}	± 20	V
MAXIMUM DRAIN CURRENT-CONTINUE	I_D	6.9	A
MAXIMUM POWER DISSIPATION DERATING @ $T_A = 25^\circ\text{C}$	P_D	2	W
OPERATING AND STORAGE JUNCTION TEMPERATURE RANGE	$T_J; T_{STG}$	- 55 TO +150	$^\circ\text{C}$
THERMAL RESISTANCE, JUNCTION-TO-AMBIENT (NOTE1)	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$

NOTE:1. 1-in² 2oz Cu PCB board



ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
STATIC						
DRAIN-SOURCE BREAKDOWN VOLTAGE	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
DRAIN-SOURCE ON-STATE RESISTANCE	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=5A$	-	35	52	$m\Omega$
DRAIN-SOURCE ON-STATE RESISTANCE	$R_{DS(on)}$	$V_{GS}=10V, I_D=8.5A$	-	22	38	$m\Omega$
GATE THRESHOLD VOLTAGE	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	3	V
ZERO GATE VOLTAGE DRAIN CURRENT	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$	-	-	1	μA
GATE BODY LEAKAGE	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
FORWARD TRANSCONDUCTANCE	g_{fs}	$V_{DS}=5V, I_D=6.9A$	-	15.4	-	S
DYNAMIC						
TOTAL GATE CHARGE	Q_g	$V_{DS}=15V, I_D=8.5A$ $V_{GS}=10V$	-	13	20	nC
GATE-SOURCE CHARGE	Q_{gs}		-	4.2	-	
GATE-DRAIN CHARGE	Q_{gd}		-	3.1	-	
TURN-ON DELAY TIME	$t_{d(on)}$	$V_{DD}=15V, R_L=15\Omega$ $I_D=1A, V_{GEN}=10V$ $R_G=6\Omega$	-	9	-	ns
TURN-ON RISE TIME	t_r		-	14	-	
TURN-OFF DELAY TIME	$t_{d(off)}$		-	30	-	
TURN-OFF FALL TIME	t_f		-	5	-	
INPUT CAPACITANCE	C_{iss}	$V_{DS}=15V, V_{GS}=0V$ $f=1.0MHz$	-	610	-	pF
OUTPUT CAPACITANCE	C_{oss}		-	100	-	
REVERSE TRANSFER CAPACITANCE	C_{rss}		-	77	-	
SOURCE-DRAIN DIODE						
DIODE FORWARD VOLTAGE	V_{SD}	$I_S=-1.6A, V_{GS}=0V$	-	-	1.3	V

NOTE: Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2.0\%$.

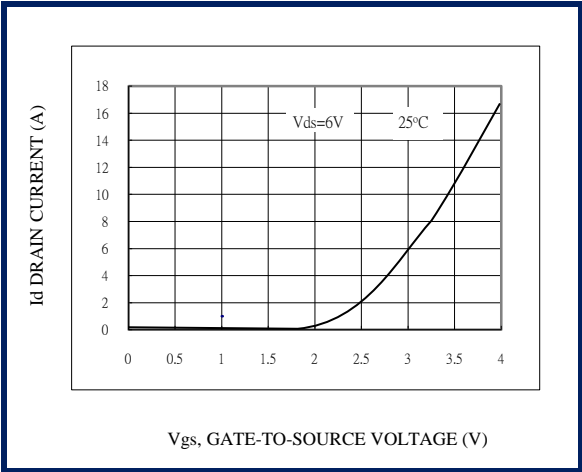


Fig.1-TRANSFER CHARACTERISTICS

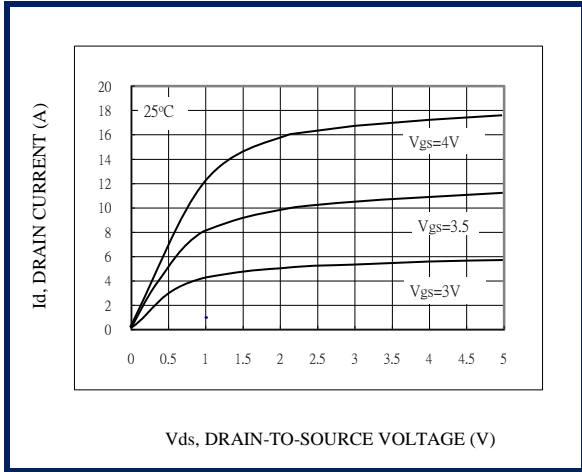


Fig.2-ON-REGION CHARACTERISTICS

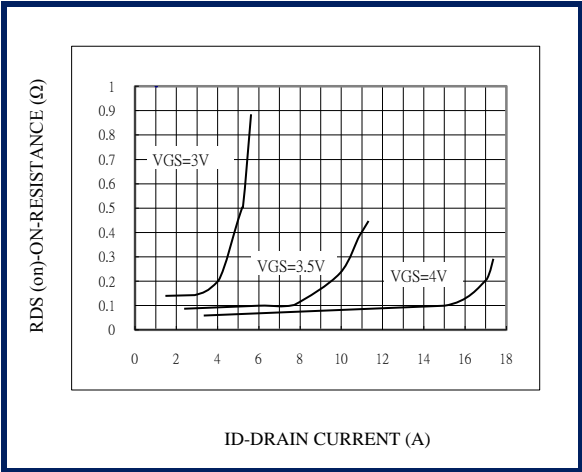


Fig.3- ON-RESISTANCE VERSUS DRAIN CURRENT

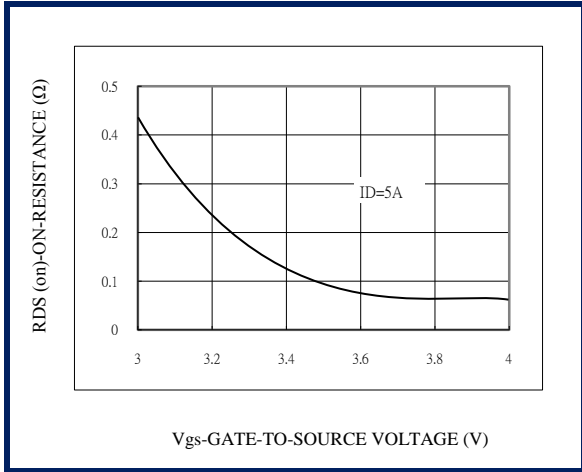


Fig.4-ON-RESISTANCE VS. GATE-TO-SOURCE VOLTAGE