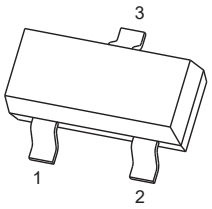
TKMP3407

30V P-Channel MOSFET

Product Summary

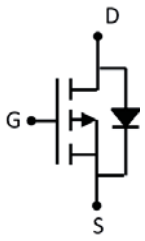
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	45mΩ@-10V	-4.1A
	57mΩ@-4.5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

Schematic diagram



Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance

Application

- Load Switch
- PWM Applications

MARKING:

ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	-30	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1,5]	T_A = 25℃	I_D	-4.1	A
Pulsed Drain Current[2]		I_{DM}	-16	A
Power Dissipation[4,5]	T_A = 25℃	P_D	1.4	W
Thermal Resistance from Junction to Ambient[5]		$R_{\theta JA}$	89	℃/W
Junction and Storage Temperature Range		T_J,T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24V, V_{GS} = 0V			-1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1	-1.6	-3	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -4.1A		45	60	mΩ
		V_{GS} = -4.5V, I_D = -3A		57	80	
Forward Transconductance	g_{FS}	V_{DS} = -5V, I_D = -4A	5			S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = -15V, V_{GS} = 0V, f = 1MHz		572		pF
Output Capacitance	C_{oss}			65		
Reverse Transfer Capacitance	C_{rss}			57		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = -15V, V_{GS} = -10V, I_D = -4.1A		10		nC
Gate-source Charge	Q_{gs}			2		
Gate-drain Charge	Q_{gd}			3.4		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -15V, V_{GS} = -10V, R_L = 3.65Ω, R_G = 3Ω		8		ns
Turn-on Rise Time	t_r			6.2		
Turn-off Delay Ttime	$t_{d(off)}$			25		
Turn-off Fall Time	t_f			10		
Source - Drain Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = -2A			1.2	V

Notes :

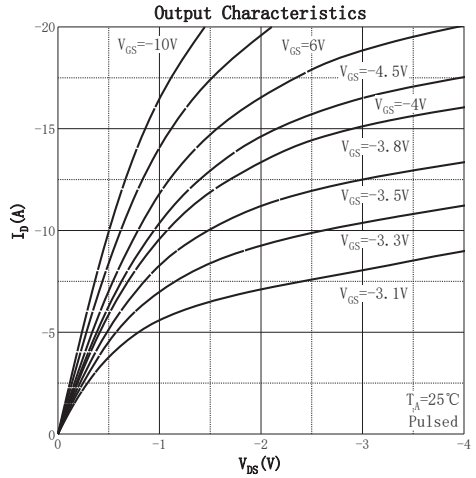
1.The maximum current rating is limited by package.

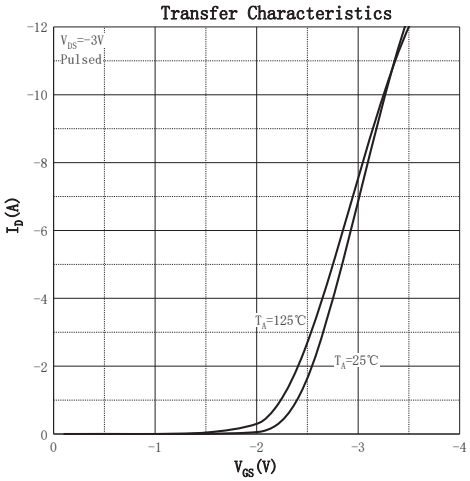
2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

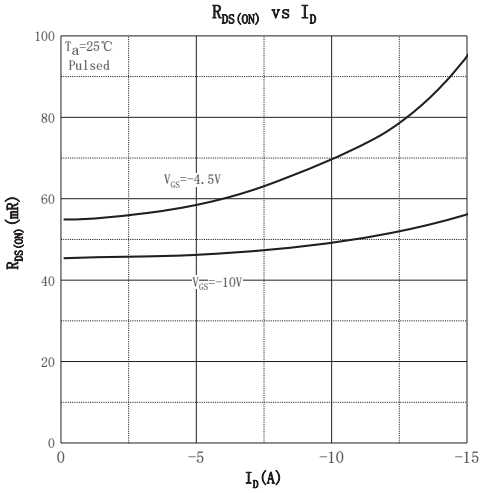
3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

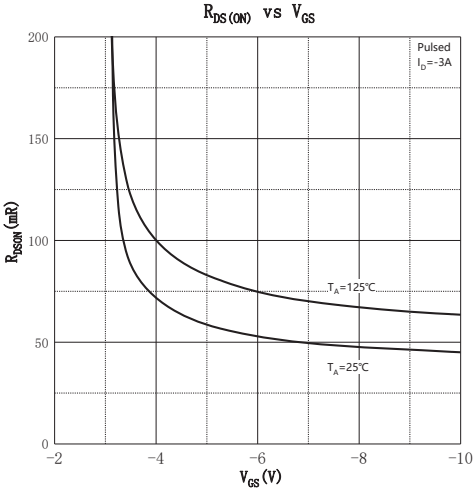
4.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

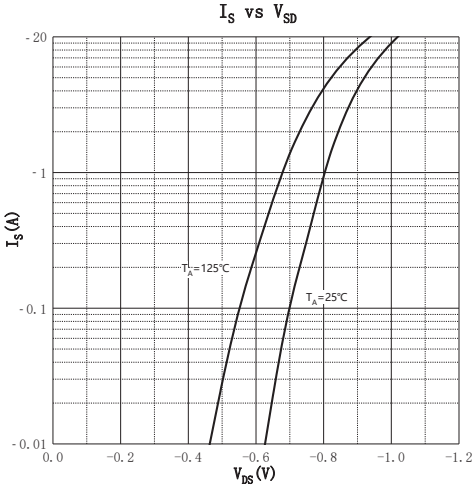
5.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

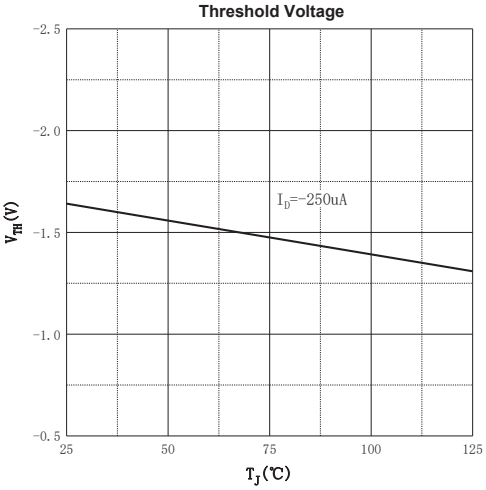

Output Characteristics
V_GS=-10V
V_GS=6V
V_GS=-4.5V
V_GS=-4V
V_GS=-3.8V
V_GS=-3.5V
V_GS=-3.3V
V_GS=-3.1V
T_A=25℃
Pulsed
I_D(A)
V_DS(V)

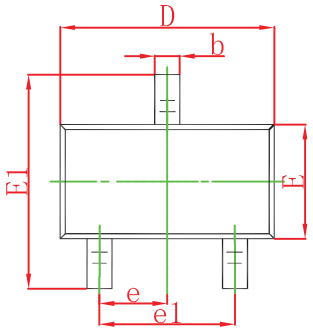

Transfer Characteristics
V_DS=-3V
Pulsed
T_A=125℃
T_A=25℃
I_D(A)
V_GS(V)

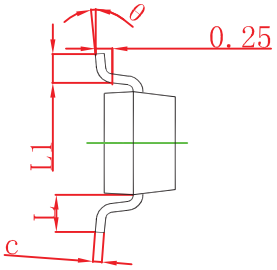

R_DS(ON) vs I_D
Ta=25℃
Pulsed
V_GS=-4.5V
V_GS=-10V
R_DS(ON)(mΩ)
I_D(A)

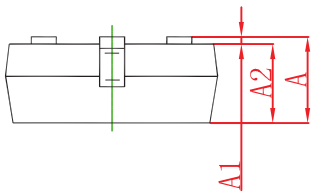

R_DS(ON) vs V_GS
Pulsed
I_D=-3A
T_A=125℃
T_A=25℃
R_DSON(mΩ)
V_GS(V)


I_S vs V_SD
T_A=125℃
T_A=25℃
I_S(A)
V_DS(V)


Threshold Voltage
I_D=-250uA
V_TH(V)
T_J(℃)

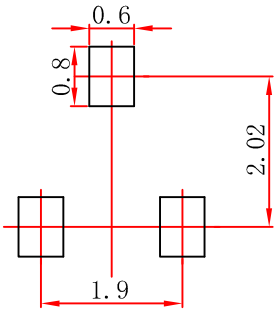






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.