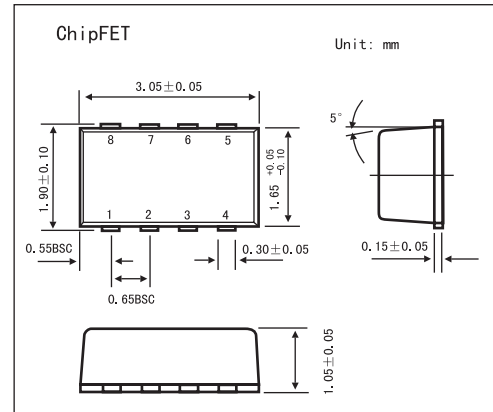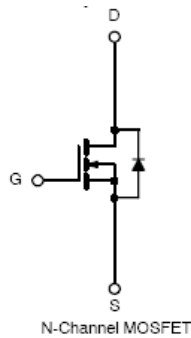# N-Channel 2.5-V (G-S) MOSFET

KI5406DC

■ Features

● TrenchFET Power MOSFETS: 2.5-V Rated

● Low Thermal Resistance

ChipFET   Unit: mm

N-Channel MOSFET

■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V_DS	12		V
Gate-Source Voltage		V_GS	±8		
Continuous Drain Current (T_J = 150 ℃) *	T_A = 25℃	I_D	9.5	6.9	A
	T_A = 85℃		6.8	4.9	
Pulsed Drain Current		I_DM	20		
Continuous Source Current *		I_S	2.1	1.1	
Maximum Power Dissipation *	T_A = 25℃	P_D	2.5	1.3	W
	T_A = 85℃		1.3	0.7	
Operating Junction and Storage Temperature Range		T_J, T_stg	-55 to 150		℃
Soldering Recommendations (Peak Temperature)			260		℃
Parameter		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambienta	t ≤ 5 sec	R_thJA	40	50	℃/W
	Steady-State		80	95	
Maximum Junction-to-Foot (Drain)	Steady-State	R_thJF	15	20	

* Surface Mounted on 1" X 1' FR4 Board.

KI5406DC

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Gate Threshold Voltage	V$_{GS(th)}$	V$_{DS}$ = V$_{GS}$, I$_D$ = 1.2mA	0.6			V
Gate-Body Leakage	I$_{GSS}$	V$_{DS}$ = 0 V, V$_{GS}$ = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I$_{DSS}$	V$_{DS}$ = 9.6 V, V$_{GS}$ = 0 V			1	μA
		V$_{DS}$ = 9.6V, V$_{GS}$ = 0 V, T$_J$ = 85℃			5	μA
On-State Drain Current*	I$_{D(on)}$	V$_{DS}$ ≥ 5 V, V$_{GS}$ = 4.5 V	20			A
Drain-Source On-State Resistance*	r$_{DS(on)}$	V$_{GS}$ = 4.5 V, I$_D$ = 6.9A		0.017	0.028	Ω
		V$_{GS}$ = 2.5 V, I$_D$ = 2A		0.021	0.039	Ω
Forward Transconductance*	g$_{fs}$	V$_{DS}$ = 10 V, I$_D$ = 6.9A		30		S
Schottky Diode Forward Voltage*	V$_{SD}$	I$_S$ = 1.1 A, V$_{GS}$ = 0 V		0.7		V
Total Gate Charge	Q$_g$	V$_{DS}$=6V, V$_{GS}$ = 4.5 V, I$_D$ = 6.9 A		13.7	20	nC
Gate-Source Charge	Q$_{gs}$			2.3		nC
Gate-Drain Charge	Q$_{gd}$			4.1		nC
Turn-On Delay Time	t$_{d(on)}$	V$_{DD}$ = 6 V, R$_L$ = 6 Ω, I$_D$ = 1 A, V$_{GEN}$ = 4.5V, R$_G$ = 6 Ω		17	25	ns
Rise Time	t$_r$			46	70	ns
Turn-Off Delay Time	t$_{d(off)}$			54	80	ns
Fall Time	t$_f$			29	45	ns
Source-Drain Reverse Recovery Time	t$_{rr}$	I$_F$ = 1.1 A, di/dt = 100 A/μs		35	70	ns

* Pulse test; pulse width≤ 300μs, duty cycle ≤ 2%.