P-Channel 2.5-V (G-S) MOSFET
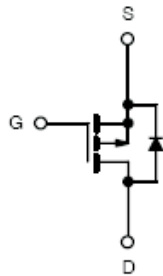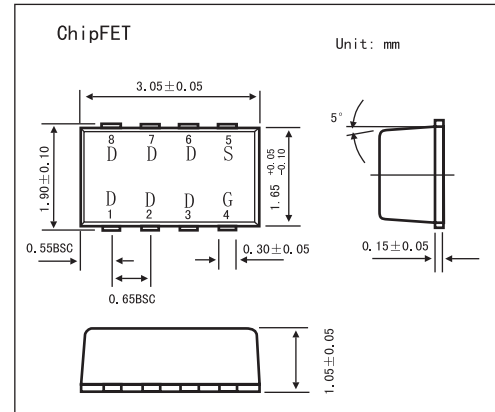
KI5441DC

■ Features

● TrenchFET Power MOSFET

● 2.5-V Rated

P-Channel MOSFET

■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	-20		V
Gate-Source Voltage		V_{GS}	±12		
Continuous Drain Current (T_J = 150 ℃) *	T_A = 25℃	I_D	-5.3	-3.9	A
	T_A = 85℃		-3.8	-2.8	
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.

KI5441DC

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\mu A$	-0.6		-1.0	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0$ V, $V_{GS} = \pm 12$ V			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20$V, $V_{GS} = 0$ V			-1	μA
		$V_{DS} = -20$V, $V_{GS} = 0$ V, $T_J = 85$℃			-5	μA
On-State Drain Current*	$I_{D(on)}$	$V_{DS} \leqslant -5$ V, $V_{GS} = -4.5$ V	-20			A
Drain-Source On-State Resistance*	$r_{DS(on)}$	$V_{GS} = -4.5$ V, $I_D = -3.9$A		0.046	0.055	Ω
		$V_{GS} = -3.6$ V, $I_D = -3.7$A		0.05	0.06	Ω
		$V_{GS} = -2.5$ V, $I_D = -3.1$A		0.07	0.083	Ω
Forward Transconductance*	g_{fs}	$V_{DS} = -10$ V, $I_D = -3.9$A		12		S
Schottky Diode Forward Voltage*	V_{SD}	$I_S = -1.1$ A, $V_{GS} = 0$ V		-0.8	-1.2	V
Total Gate Charge	Q_g	$V_{DS} = -10$V, $V_{GS} = -4.5$ V, $I_D = -3.9$ A		11	22	nC
Gate-Source Charge	Q_{gs}			3.0		nC
Gate-Drain Charge	Q_{gd}			2.5		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10$ V, $R_L = 10 \Omega$ $I_D = -1$ A, $V_{GEN} = -4.5$V, $R_G = 6 \Omega$		20	30	ns
Rise Time	t_r			35	55	ns
Turn-Off Delay Time	$t_{d(off)}$			65	100	ns
Fall Time	t_f			45	70	ns
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1.1$ A, di/dt = 100 A/μ s		30	60	ns

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

KEXIN