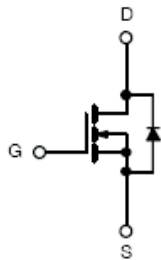


## N-Channel 2.5-V (G-S) MOSFET

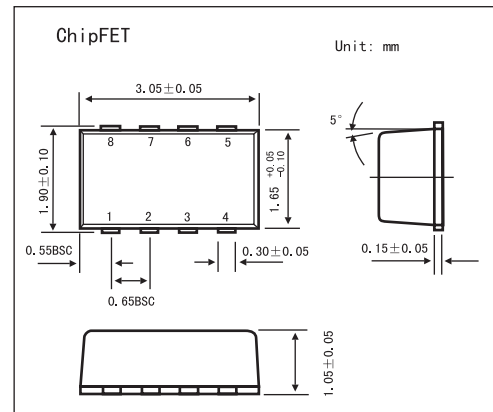
### KI5404BDC

#### ■ Features

- TrenchFET Power MOSFET



N-Channel MOSFET



#### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		$V_{DS}$	20		V
Gate-Source Voltage		$V_{GS}$	$\pm 12$		
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) *	$T_A = 25^\circ\text{C}$	$I_D$	7.5	5.4	A
	$T_A = 70^\circ\text{C}$		5.4	3.9	
Pulsed Drain Current		$I_{DM}$	20		
Continuous Source Current *		$I_S$	2.1	1.1	
Maximum Power Dissipation *	$T_A = 25^\circ\text{C}$	$P_D$	2.5	1.3	W
	$T_A = 70^\circ\text{C}$		1.3	0.7	
Operating Junction and Storage Temperature Range		$T_J, T_{stg}$	-55 to 150		$^\circ\text{C}$
Soldering Recommendations (Peak Temperature)			260		$^\circ\text{C}$
Parameter		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambienta	$t \leq 5 \text{ sec}$	$R_{thJA}$	45	50	$^\circ\text{C/W}$
	Steady-State		80	95	
Maximum Junction-to-Foot (Drain)	Steady-State	$R_{thJF}$	18	22	

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

## KI5404BDC

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	0.6		1.5	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±12 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 85°C			5	μA
On-State Drain Current*	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 4.5 V	20			A
Drain-Source On-State Resistance*	r <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 5.4 A		0.022	0.028	Ω
		V <sub>GS</sub> = 2.5 V, I <sub>D</sub> = 2.6 A		0.031	0.039	Ω
Forward Transconductance*	g <sub>fs</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 5.4 A		26		S
Schottky Diode Forward Voltage*	V <sub>SD</sub>	I <sub>S</sub> = 1.1 A, V <sub>GS</sub> = 0 V		0.7		V
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 5.4 A		7	11	nC
Gate-Source Charge	Q <sub>gs</sub>			1.7		nC
Gate-Drain Charge	Q <sub>gd</sub>			2		nC
Gate Resistance	R <sub>g</sub>			1.7		Ω
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 10 V, R <sub>L</sub> = 10 Ω I <sub>D</sub> = 1 A, V <sub>GEN</sub> = 4.5V, R <sub>G</sub> = 6 Ω		12	20	ns
Rise Time	t <sub>r</sub>			12	20	ns
Turn-Off Delay Time	t <sub>d(off)</sub>			25	40	ns
Fall Time	t <sub>f</sub>			10	20	ns
Source-Drain Reverse Recovery Time	t <sub>rr</sub>		I <sub>F</sub> = 1.1 A, di/dt = 100 A/μs		20	40

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