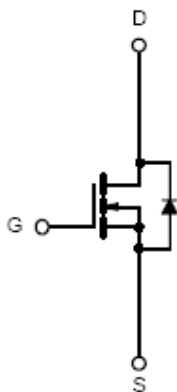


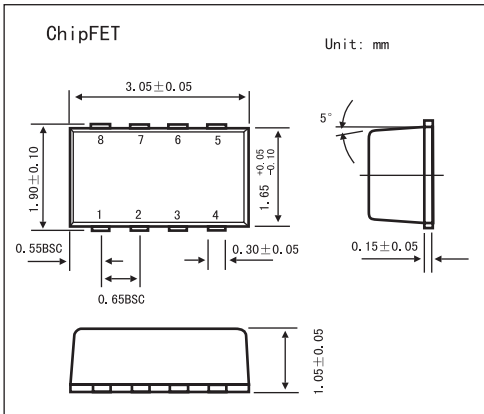
N-Channel 30-V (D-S) MOSFET KI5402DC

■ Features

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N-Channel MOSFET



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

Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	30		V
Gate-Source Voltage		V _{GS}	±20		
Continuous Drain Current (T _J = 150 °C) *	T _A = 25 °C	I _D	±6.7	±4.9	A
	T _A = 70 °C		±4.8	±3.5	
Pulsed Drain Current		I _{DM}	±20		
Continuous Source Current *		I _S	2.1	1.1	
Maximum Power Dissipation *	T _A = 25 °C	P _D	2.5	1.3	W
	T _A = 70 °C		1.3	0.7	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150		°C
Soldering Recommendations (Peak Temperature)			260		°C
Parameter		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambienta	t ≤ 5 sec	R _{thJA}	40	50	°C/W
	Steady-State		80	95	
Maximum Junction-to-Foot (Drain)	Steady-State	R _{thJF}	15	20	

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

KI5402DC

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	1.0			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 20\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24\ \text{V}, V_{GS} = 0\ \text{V}$			1	μA
		$V_{DS} = 24\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 55^\circ\text{C}$			5	μA
On-State Drain Current*	$I_{D(on)}$	$V_{DS} \geq 5\ \text{V}, V_{GS} = 10\ \text{V}$	20			A
Drain-Source On-State Resistance*	$r_{DS(on)}$	$V_{GS} = 10\ \text{V}, I_D = 4.9\ \text{A}$		0.030	0.035	Ω
		$V_{GS} = 4.5\ \text{V}, I_D = 3.9\ \text{A}$		0.045	0.055	Ω
Forward Transconductance*	g_{fs}	$V_{DS} = 10\ \text{V}, I_D = 4.9\ \text{A}$		15		S
Schottky Diode Forward Voltage*	V_{SD}	$I_S = 1.1\ \text{A}, V_{GS} = 0\ \text{V}$		0.8	1.2	V
Total Gate Charge	Q_g	$V_{DS} = 15\ \text{V}, V_{GS} = 10\ \text{V}, I_D = 4.9\ \text{A}$		13	20	nC
Gate-Source Charge	Q_{gs}			1.3		nC
Gate-Drain Charge	Q_{gd}			3.1		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15\ \text{V}, R_L = 15\ \Omega$ $I_D = 1\ \text{A}, V_{GEN} = 10\text{V}, R_G = 6\ \Omega$		10	15	ns
Rise Time	t_r			10	15	ns
Turn-Off Delay Time	$t_{d(off)}$			25	40	ns
Fall Time	t_f			10	15	ns
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 1.1\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		30	60	ns

* Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.