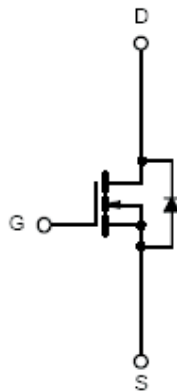


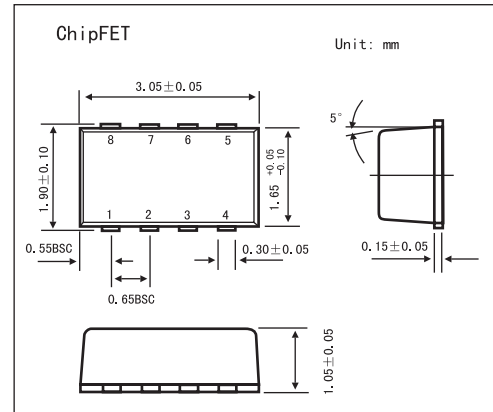
N-Channel 30-V (D-S) MOSFET

KI5402DC

■ Features



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 ($T_J = 150^\circ\text{C}$) *	$T_A = 25^\circ\text{C}$	I_D	± 6.7	± 4.9	A
	$T_A = 70^\circ\text{C}$		± 4.8	± 3.5	
Pulsed Drain Current		I_{DM}	± 20		
Continuous Source Current *		I_S	2.1	1.1	W
Maximum Power Dissipation *	$T_A = 25^\circ\text{C}$	P_D	2.5	1.3	
	$T_A = 70^\circ\text{C}$		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-Ambient	$t \leq 5 \text{ sec}$	R_{thJA}	40	50	$^\circ\text{C}/\text{W}$
	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 Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	1.0			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24 V, V _{GS} = 0 V			1	μA
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 55°C			5	μA
On-State Drain Current*	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	20			A
Drain-Source On-State Resistance*	r _{Ds(on)}	V _{GS} = 10 V, I _D = 4.9 A		0.030	0.035	Ω
		V _{GS} = 4.5 V, I _D = 3.9 A		0.045	0.055	Ω
Forward Transconductance*	g _{fs}	V _{DS} = 10 V, I _D = 4.9 A		15		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} = 15 V, V _{GS} = 10 V, I _D = 4.9 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 V, R _L = 15 Ω I _D = 1 A, V _{GEN} = 10V, R _G = 6 Ω		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 A, di/dt = 100 A/μs		30	60	ns

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