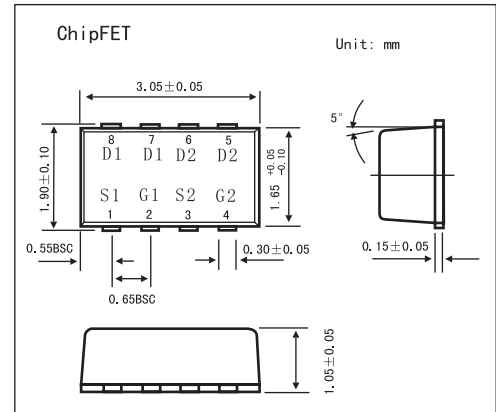
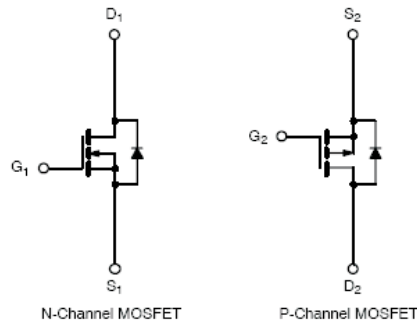


Complementary 20-V (D-S) MOSFET

KI5515DC

■ Features

- TrenchFET Power MOSFETS
- Ultra Low $r_{DS(on)}$ and Excellent Power Handling In Compact Footprint

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

Parameter	Symbol	N-Channel		P-Channel		Unit
		5 secs	Steady State	5 secs	Steady State	
Drain-Source Voltage	V_{DS}	20		-20		V
Gate-Source Voltage	V_{GS}	± 8				V
Continuous Drain Current ($T_J = 150^\circ\text{C}$)* $T_A = 25^\circ\text{C}$	I_D	5.9	4.4	-4.1	-3	A
		$T_A = 85^\circ\text{C}$	4.2	3.1	-2.9	-2.2
Pulsed Drain Current	I_{DM}	20		-15		A
Continuous Source Current (Diode Conduction)*	I_S	1.8	0.9	-1.8	-0.9	A
Maximum Power Dissipation* $T_A = 25^\circ\text{C}$	P_D	2.1	1.1	2.1	1.1	W
		$T_A = 85^\circ\text{C}$	1.1	0.6	1.1	0.6
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150				$^\circ\text{C}$

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

■ Thermal Resistance Ratings

Parameter	Symbol	Typ	Max	Unit	
Maximum Junction-to-Ambient*	R_{thJA}	$t \leq 5 \text{ sec}$	50	60	$^\circ\text{C/W}$
		Steady State	90	110	
Maximum Junction-to-Case (Drain)	R_{thJF}	30	40		

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

KI5515DC

■ Electrical Characteristics T_J = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	N-Ch	0.4	1.0	V
		V _{DS} = V _{GS} , I _D = -250 μA	P-Ch	-0.4	-1.0	
Gate Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8 V	N-Ch		±100	nA
		V _{DS} = 0 V, V _{GS} = ±8V	P-Ch		±100	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0 V	N-Ch		1	μA
		V _{DS} = -20V, V _{GS} = 0 V	P-Ch		-1	
		V _{DS} = 20 V, V _{GS} = 0 V, T _J = 85°C	N-Ch		5	μA
		V _{DS} = -20V, V _{GS} = 0 V, T _J = 85°C	P-Ch		-5	
On State Drain Currenta	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 4.5 V	N-Ch	20		A
		V _{DS} ≤ -5 V, V _{GS} = -4.5 V	P-Ch	-15		
Drain Source On State Resistance*	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 4.4A	N-Ch	0.032	0.040	Ω
		V _{GS} = -4.5 V, I _D = -3.0A	P-Ch	0.069	0.086	
		V _{GS} = 2.5 V, I _D = 4.1A	N-Ch	0.036	0.045	
		V _{GS} = -2.5 V, I _D = -2.5A	P-Ch	0.097	0.121	
		V _{GS} = 1.8 V, I _D = 1.9A	N-Ch	0.042	0.052	
		V _{GS} = -1.8 V, I _D = -0.6A	P-Ch	0.137	0.171	
Forward Transconductance*	g _{fs}	V _{DS} = 10 V, I _D = 4.4A	N-Ch	22		S
		V _{DS} = -10 V, I _D = -3A	P-Ch	8		
Diode Forward Voltage*	V _{SD}	I _S = 0.9A, V _{GS} = 0 V	N-Ch	0.8	1.2	V
		I _S = -0.9A, V _{GS} = 0 V	P-Ch	-0.8	-1.2	
Total Gate Charge	Q _g	N-Channel V _{DS} = 10V, V _{GS} = 4.5V, I _D = 4.4A	N-Ch	5	7.5	nC
Gate Source Charge	Q _{gs}	P-Channel	N-Ch	0.85		
Gate Drain Charge	Q _{gd}		N-Ch	1		
		V _{DS} = -10 V, V _{GS} = -4.5 V, I _D = -3A	P-Ch	1.6		
Turn On Time	t _{d(on)}	N Channel V _{DD} = 10 V, R _L = 10 Ω	N-Ch	20	30	ns
Rise Time	t _r	I _D = 1A, V _{GEN} = 4.5V, R _g = 6 Ω	P-Ch	18	30	
			N-Ch	36	55	
Turn Off Delay Time	t _{d(off)}	P-Channel V _{DD} = -10 V, R _L = 10 Ω	N-Ch	30	45	
			P-Ch	42	65	
Fall Time	t _f	I _D = -1 A, V _{GEN} = -4.5 V, R _g = 6 Ω	N-Ch	12	20	
			P-Ch	26	40	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 0.9 A, di/dt = 100 A/μs	N-Ch	45	90	
		I _F = -0.9 A, di/dt = 100 A/μs	P-Ch	30	60	

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