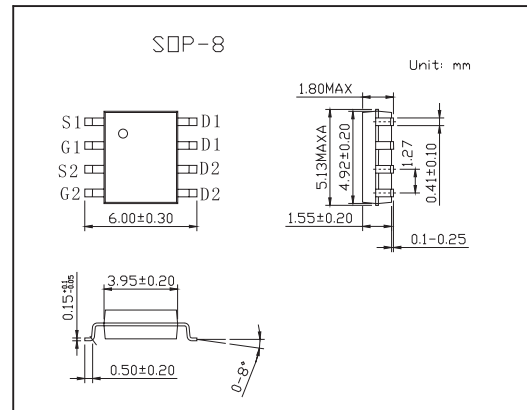
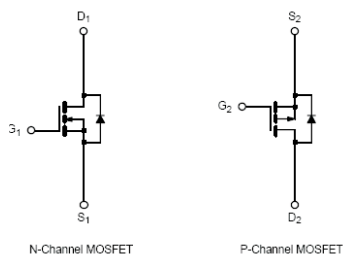


N- and P-Channel 30-V (D-S) MOSFET

KI4539ADY

■ PIN Configuration

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

Parameter	Symbol	N-Channel		P-Channel		Unit	
		10 secs	Steady State	10 secs	Steady State		
Drain-Source Voltage	V_{DS}	30		-30		V	
Gate-Source Voltage	V_{GS}	± 20		± 20		V	
Continuous Drain Current ($T_J = 150^\circ\text{C}$)* $T_A = 25^\circ\text{C}$	I_D	5.9	4.4	-4.9	-3.7	A	
		$T_A = 70^\circ\text{C}$	4.7	3.6	-3.9	-2.9	A
Pulsed Drain Current	I_{DM}	30				A	
Continuous Source Current (Diode Conduction)*	I_S	1.7	0.9	-1.7	-0.9	A	
Maximum Power Dissipation*	P_D	$T_A = 25^\circ\text{C}$	2	1.1	2	1.1	W
		$T_A = 70^\circ\text{C}$	1.3	0.7	1.3	0.7	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150				$^\circ\text{C}$	

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

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

Parameter	Symbol	N-Channel		P-Channel		Unit	
		Typ	Max	Typ	Max		
Maximum Junction-to-Ambient *	$t \leq 10 \text{ sec}$	R_{thJA}	50	62.5	52	62.5	$^\circ\text{C}/\text{W}$
	Steady State		90	110	90	110	
Maximum Junction-to-Foot(Drain)	Steady State	R_{thJF}	40	40	32	40	

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

KI4539ADY

■ 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	1		V	
		V _{DS} = V _{GS} , I _D = -250 μA	P-Ch	-1			
Gate Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V	N-Ch		±100	nA	
		V _{DS} = 0 V, V _{GS} = ±20 V	P-Ch		±100		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0 V	N-Ch		1	nA	
		V _{DS} = -24V, V _{GS} = 0 V	P-Ch		-1		
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 55°C	N-Ch			5	μA
		V _{DS} = -24V, V _{GS} = 0 V, T _J = 55°C	P-Ch			-5	
On State Drain Currenta	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	N-Ch	30		A	
		V _{DS} ≤ -5 V, V _{GS} = -10 V	P-Ch	-30			
Drain Source On State Resistance*	r _{DS(on)}	V _{GS} = 10 V, I _D = 5.9A	N-Ch		0.032	0.036	Ω
		V _{GS} = -10 V, I _D = -4.9A	P-Ch		0.043	0.053	
		V _{GS} = 4.5 V, I _D = 4.9A	N-Ch		0.042	0.053	
		V _{GS} = -4.5 V, I _D = -3.7A	P-Ch		0.075	0.090	
Forward Transconductance*	g _{fs}	V _{DS} = 15 V, I _D = 5.9A	N-Ch		15	S	
		V _{DS} = -15 V, I _D = -4.9A	P-Ch		9		
Diode Forward Voltage*	V _{SD}	I _S = 1.7A, V _{GS} = 0 V	N-Ch		0.80	1.2	V
		I _S = -1.7A, V _{GS} = 0 V	P-Ch		-0.80	-1.2	
Total Gate Charge	Q _g	N-Channel V _{DS} = 15 V, V _{GS} = 10V, I _D = 5.9A	N-Ch		13	20	nC
Gate Source Charge	Q _{gs}	P-Channel	N-Ch		2.3		
			P-Ch		4		
Gate Drain Charge	Q _{gd}	V _{DS} = -15 V, V _{GS} = -10 V, I _D = -4.9A	N-Ch		2		
			P-Ch		2.0		
Gate Resistance	R _g		N-Ch	0.5		2.2	Ω
			P-Ch	5		12.6	
Turn On Time	t _{d(on)}	N Channel V _{DD} = 15 V, R _L = 15 Ω	N-Ch		6	12	ns
Rise Time	t _r	I _D = 1A, V _{GEN} = 10V, R _g = 6 Ω	P-Ch		7	15	
			N-Ch		14	25	
Turn Off Delay Time	t _{d(off)}	P-Channel V _{DD} = -15 V, R _L = 15 Ω	N-Ch		30	60	
			P-Ch		40	80	
Fall Time	t _f	I _D = -1 A, V _{GEN} = -10 V, R _g = 6 Ω	N-Ch		5	10	
			P-Ch		20	40	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.7 A, di/dt = 100 A/μs	N-Ch		30	60	
		I _F = -1.7 A, di/dt = 100 A/μs	P-Ch		30	60	

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