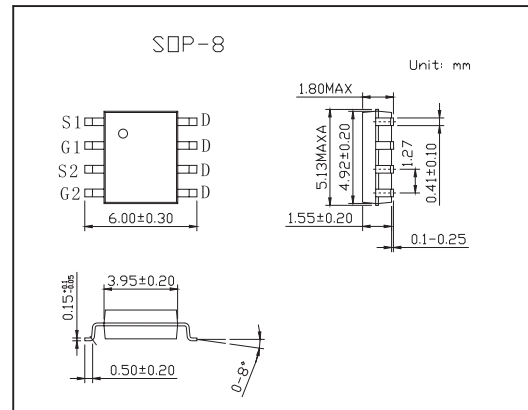
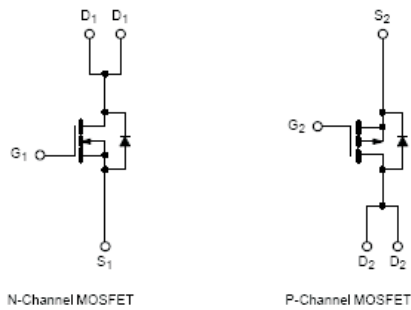


N-Channel 60-V (D-S), 175°C MOSFET

KI4559EY

■ PIN Configuration

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

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	60	-60	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	± 4.5	± 3.1	A
		± 3.8	± 2.6	A
$T_A = 70^\circ\text{C}$				
Pulsed Drain Current	I_{DM}	± 30	± 30	A
Continuous Source Current (Diode Conduction)*	I_S	2	-2	A
Maximum Power Dissipation*	P_D	$T_A = 25^\circ\text{C}$		2.4
		$T_A = 70^\circ\text{C}$		1.7
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 175		$^\circ\text{C}$
Maximum Junction-to-Ambient *	R_{thJA}	62.5		$^\circ\text{C}/\text{W}$

*Surface Mounted on FR4 Board, $t \leq 10$ sec.

KI4559EY

■ 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} = 60V, V _{GS} = 0 V	N-Ch		2	μA	
		V _{DS} = -60V, V _{GS} = 0 V	P-Ch		-2		
		V _{DS} = 60 V, V _{GS} = 0 V, T _J = 55°C	N-Ch		25	μA	
		V _{DS} = -60V, V _{GS} = 0 V, T _J = 55°C	P-Ch		-25		
On State Drain Currenta	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	N-Ch	20		A	
		V _{DS} ≤ -5 V, V _{GS} = -10 V	P-Ch	-20			
Drain Source On State Resistance*	r _{Ds(on)}	V _{GS} = 10 V, I _D = 4.5A	N-Ch		0.045	0.055	Ω
		V _{GS} = -10 V, I _D = -3.1A	P-Ch		0.100	0.120	
		V _{GS} = 4.5 V, I _D = 3.9A	N-Ch		0.055	0.075	
		V _{GS} = -4.5 V, I _D = -2.8A	P-Ch		0.125	0.150	
Forward Transconductance*	g _{fs}	V _{DS} = 15 V, I _D = 4.5A	N-Ch		13	S	
		V _{DS} = -15 V, I _D = -3.1A	P-Ch		7.5		
Diode Forward Voltage*	V _{SD}	I _S = 2A, V _{GS} = 0 V	N-Ch		0.9	1.2	V
		I _S = -2A, V _{GS} = 0 V	P-Ch		-0.8	-1.2	
Total Gate Charge	Q _g	N-Channel V _{DS} = 30 V, V _{GS} = 10V, I _D = 4.5A	N-Ch		19	30	nC
Gate Source Charge	Q _{gs}	P-Channel V _{DS} = -30 V, V _{GS} = -10 V, I _D = -3.1A	N-Ch		4		
Gate Drain Charge	Q _{gd}		P-Ch		4		
Turn On Time	t _{d(on)}	N Channel V _{DD} = 30 V, R _L = 30 Ω	N-Ch		13	20	
Rise Time	t _r	I _D = 1A, V _{GEN} = 10V, R _g = 6 Ω	P-Ch		8	15	ns
			N-Ch		11	20	
Turn Off Delay Time	t _{d(off)}	P-Channel V _{DD} = -30 V, R _L = 30 Ω	N-Ch		36	60	
			P-Ch		12	25	
Fall Time	t _f	I _D = -1 A, V _{GEN} = -10 V, R _g = 6 Ω	N-Ch		11	20	
			P-Ch		35	50	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 2 A, di/dt = 100 A/μs	N-Ch		35	60	
		I _F = -2 A, di/dt = 100 A/μs	P-Ch		60	90	

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