



## KI4558DY

■ Electrical Characteristics T<sub>J</sub> = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	N-Ch	1			V
		V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	P-Ch	-1			
Gate Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V	N-Ch			±100	nA
		V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V	P-Ch			±100	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0 V	N-Ch			1	nA
		V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0 V	P-Ch			-1	
		V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 70°C	N-Ch			5	μA
		V <sub>DS</sub> = -24V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 70°C	P-Ch			-5	
On State Drain Currenta	I <sub>D(on)</sub>	V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 10 V	N-Ch	30			A
		V <sub>DS</sub> = -5 V, V <sub>GS</sub> = -10 V	P-Ch	-30			
		V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 4.5 V	N-Ch	8			A
		V <sub>DS</sub> = -5 V, V <sub>GS</sub> = -4.5 V	P-Ch	-8			
Drain Source On State Resistance*	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 6A	N-Ch		0.032	0.040	Ω
		V <sub>GS</sub> = -10 V, I <sub>D</sub> = -6A	P-Ch		0.032	0.040	
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 4.8A	N-Ch		0.045	0.060	
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -4.4A	P-Ch		0.056	0.070	
Forward Transconductance*	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 6A	N-Ch		13		S
		V <sub>DS</sub> = -15 V, I <sub>D</sub> = -6A	P-Ch		10.6		
Diode Forward Voltage*	V <sub>SD</sub>	I <sub>S</sub> = 2A, V <sub>GS</sub> = 0 V	N-Ch		0.77	1.2	V
		I <sub>S</sub> = -2A, V <sub>GS</sub> = 0 V	P-Ch		0.77	-1.2	
Total Gate Charge	Q <sub>g</sub>	N-Channel V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 6A	N-Ch		16	30	nC
Gate Source Charge	Q <sub>gs</sub>	P-Channel	N-Ch		3.4		
			P-Ch		5.4		
Gate Drain Charge	Q <sub>gd</sub>	V <sub>DS</sub> = -15 V, V <sub>GS</sub> = -10 V, I <sub>D</sub> = -6A	N-Ch		2.3		
			P-Ch		3.6		
Turn On Time	t <sub>d(on)</sub>	N Channel V <sub>DD</sub> = 15 V, R <sub>L</sub> = 15 Ω	N-Ch		12	25	ns
Rise Time	t <sub>r</sub>	I <sub>D</sub> = 1A, V <sub>GEN</sub> = 10V, R <sub>g</sub> = 6 Ω	N-Ch		12	25	
			P-Ch		12	25	
Turn Off Delay Time	t <sub>d(off)</sub>	P-Channel V <sub>DD</sub> = -15 V, R <sub>L</sub> = 15 Ω	N-Ch		27	55	
			P-Ch		38	55	
Fall Time	t <sub>f</sub>	I <sub>D</sub> = -1 A, V <sub>GEN</sub> = -10 V, R <sub>g</sub> = 6 Ω	N-Ch		24	50	
			P-Ch		25	50	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 2 A, di/dt = 100 A/μs	N-Ch		45	80	
		I <sub>F</sub> = -2 A, di/dt = 100 A/μs	P-Ch		50	80	

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