

KI4558DY

■ Electrical Characteristics $T_J = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	N-Ch	1			V
		$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	P-Ch	-1			
Gate Body Leakage	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	N-Ch			± 100	nA
		$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	P-Ch			± 100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$	N-Ch			1	nA
		$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$	P-Ch			-1	
		$V_{DS} = 24\text{V}, V_{GS} = 0\text{V}, T_J = 70^\circ\text{C}$	N-Ch			5	μA
		$V_{DS} = -24\text{V}, V_{GS} = 0\text{V}, T_J = 70^\circ\text{C}$	P-Ch			-5	
On State Drain Currenta	$I_{D(on)}$	$V_{DS} = 5\text{V}, V_{GS} = 10\text{V}$	N-Ch	30			A
		$V_{DS} = -5\text{V}, V_{GS} = -10\text{V}$	P-Ch	-30			
		$V_{DS} = 5\text{V}, V_{GS} = 4.5\text{V}$	N-Ch	8			A
		$V_{DS} = -5\text{V}, V_{GS} = -4.5\text{V}$	P-Ch	-8			
Drain Source On State Resistance*	$r_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 6\text{A}$	N-Ch		0.032	0.040	Ω
		$V_{GS} = -10\text{V}, I_D = -6\text{A}$	P-Ch		0.032	0.040	
		$V_{GS} = 4.5\text{V}, I_D = 4.8\text{A}$	N-Ch		0.045	0.060	
		$V_{GS} = -4.5\text{V}, I_D = -4.4\text{A}$	P-Ch		0.056	0.070	
Forward Transconductance*	g_{fs}	$V_{DS} = 15\text{V}, I_D = 6\text{A}$	N-Ch		13		S
		$V_{DS} = -15\text{V}, I_D = -6\text{A}$	P-Ch		10.6		
Diode Forward Voltage*	V_{SD}	$I_S = 2\text{A}, V_{GS} = 0\text{V}$	N-Ch		0.77	1.2	V
		$I_S = -2\text{A}, V_{GS} = 0\text{V}$	P-Ch		0.77	-1.2	
Total Gate Charge	Q_g	N-Channel $V_{DS} = 15\text{V}, V_{GS} = 10\text{V}, I_D = 6\text{A}$	N-Ch		16	30	nC
Gate Source Charge	Q_{gs}	P-Channel	N-Ch		3.4		
			P-Ch		5.4		
Gate Drain Charge	Q_{gd}	$V_{DS} = -15\text{V}, V_{GS} = -10\text{V}, I_D = -6\text{A}$	N-Ch		2.3		
			P-Ch		3.6		
Turn On Time	$t_{d(on)}$	N Channel $V_{DD} = 15\text{V}, R_L = 15\Omega$	N-Ch		12	25	ns
Rise Time	t_r	$I_D = 1\text{A}, V_{GEN} = 10\text{V}, R_g = 6\Omega$	N-Ch		12	25	
			P-Ch		12	25	
Turn Off Delay Time	$t_{d(off)}$	P-Channel $V_{DD} = -15\text{V}, R_L = 15\Omega$	N-Ch		27	55	
			P-Ch		38	55	
Fall Time	t_f	$I_D = -1\text{A}, V_{GEN} = -10\text{V}, R_g = 6\Omega$	N-Ch		24	50	
			P-Ch		25	50	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 2\text{A}, di/dt = 100\text{A}/\mu\text{s}$	N-Ch		45	80	
		$I_F = -2\text{A}, di/dt = 100\text{A}/\mu\text{s}$	P-Ch		50	80	

* Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.