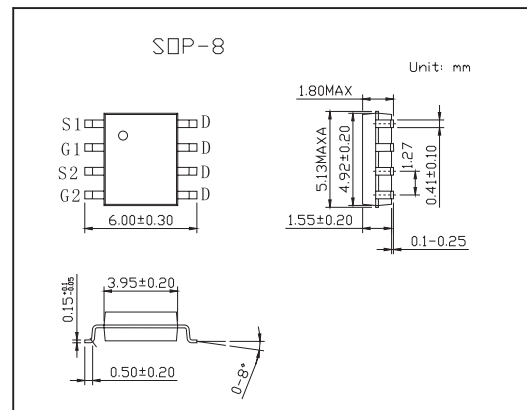
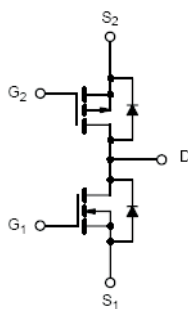


## N- and P-Channel 30-V (D-S) MOSFET

## KI4544DY

## ■ PIN Configuration

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

Parameter	Symbol	N-Channel	P-Channel	Unit	
Drain-Source Voltage	$V_{DS}$	30	-30	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$	$\pm 20$	V	
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ )* $T_A = 25^\circ\text{C}$	$I_D$	$\pm 6.5$	$\pm 5.7$	A	
		$T_A = 70^\circ\text{C}$	$\pm 5.4$	$\pm 4.0$	A
Pulsed Drain Current	$I_{DM}$	$\pm 20$	$\pm 20$	A	
Continuous Source Current (Diode Conduction)*	$I_S$	1.7	-1.7	A	
Maximum Power Dissipation*	$P_D$	$T_A = 25^\circ\text{C}$		2.4	W
		$T_A = 70^\circ\text{C}$		1.5	W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150		$^\circ\text{C}$	
Maximum Junction-to-Ambient *	$R_{thJA}$	52		$^\circ\text{C}/\text{W}$	

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

## KI4544DY

■ 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		$\pm 100$	nA	
		$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	P-Ch		$\pm 100$		
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$	N-Ch		1	$\mu\text{A}$	
		$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$	P-Ch		-1		
		$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}, T_J = 55^\circ\text{C}$	N-Ch		5		
		$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}, T_J = 55^\circ\text{C}$	P-Ch		-5		
On State Drain Currenta	$I_{D(on)}$	$V_{DS} \geq 5\text{V}, V_{GS} = 10\text{V}$	N-Ch	20		A	
		$V_{DS} \geq -5\text{V}, V_{GS} = -10\text{V}$	P-Ch	-20			
		$V_{DS} \geq 5\text{V}, V_{GS} = 4.5\text{V}$	N-Ch	5		A	
		$V_{DS} \geq -5\text{V}, V_{GS} = -4.5\text{V}$	P-Ch	-5			
Drain Source On State Resistance*	$r_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 6.5\text{A}$	N-Ch		0.027	0.035	$\Omega$
		$V_{GS} = -10\text{V}, I_D = -5.7\text{A}$	P-Ch		0.036	0.045	
		$V_{GS} = 4.5\text{V}, I_D = 5.4\text{A}$	N-Ch		0.038	0.050	
		$V_{GS} = -4.5\text{V}, I_D = -4.0\text{A}$	P-Ch		0.060	0.090	
Forward Transconductance*	$g_{fs}$	$V_{DS} = 15\text{V}, I_D = 6.5\text{A}$	N-Ch		15	S	
		$V_{DS} = -15\text{V}, I_D = -5.7\text{A}$	P-Ch		9		
Diode Forward Voltage*	$V_{SD}$	$I_S = 1.7\text{A}, V_{GS} = 0\text{V}$	N-Ch		0.75	1.2	V
		$I_S = -1.7\text{A}, V_{GS} = 0\text{V}$	P-Ch		-0.75	-1.2	
Total Gate Charge	$Q_g$	N-Channel $V_{DS} = 15\text{V}, V_{GS} = 10\text{V}, I_D = 6.5\text{A}$	N-Ch		18	35	nC
Gate Source Charge	$Q_{gs}$		P-Ch		19	40	
Gate Drain Charge	$Q_{gd}$	P-Channel $V_{DS} = -15\text{V}, V_{GS} = -10\text{V}, I_D = -5.7\text{A}$	N-Ch		4.2		
			P-Ch		4.5		
Turn On Time	$t_{d(on)}$	N Channel $V_{DD} = 15\text{V}, R_L = 15\Omega$	N-Ch		13	30	ns
Rise Time	$t_r$		P-Ch		13	30	
Turn Off Delay Time	$t_{d(off)}$	P-Channel $V_{DD} = -15\text{V}, R_L = 15\Omega$	N-Ch		31	60	
			P-Ch		37	70	
Fall Time	$t_f$	ID= -1 A, VGEN = -10 V, Rg = 6 $\Omega$	N-Ch		10	30	
			P-Ch		14	30	
Source-Drain Reverse Recovery Time	$t_{rr}$	$I_F = 1.7\text{A}, di/dt = 100\text{A}/\mu\text{s}$	N-Ch		30	70	
		$I_F = -1.7\text{A}, di/dt = 100\text{A}/\mu\text{s}$	P-Ch		35	70	

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