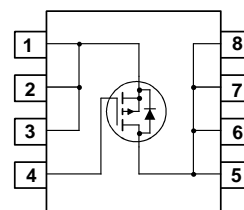
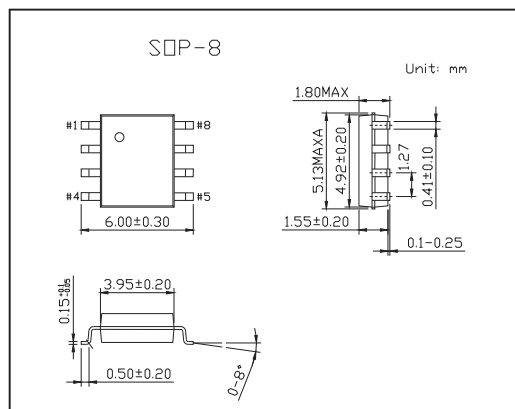


## P-Channel Enhancement Mode MOSFET

## KI5P03DY

## ■ Features

- 5.3 A, -30 V.  $R_{DS(ON)} = 50 \text{ m}\Omega @ V_{GS} = -10 \text{ V}$   
 $R_{DS(ON)} = 80 \text{ m}\Omega @ V_{GS} = -4.5 \text{ V}$
- Low gate charge
- Fast switching speed
- High performance trench technology for extremely low  $R_{DS(ON)}$
- High power and current handling capability

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current -Continuous	$I_D$	-5.3	A
- Pulsed		-20	
Power Dissipation for Single Operation	$P_D$ *1	2.5	W
	$P_D$ *2	1.2	
	$P_D$ *3	1	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	50	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	25	$^\circ\text{C}/\text{W}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

\*1  $50^\circ\text{C}/\text{W}$  when mounted on a 1 in2 pad of 2 oz copper

\*2  $105^\circ\text{C}/\text{W}$  when mounted on a .04 pad of 2 oz copper

\*3  $125^\circ\text{C}/\text{W}$  when mounted on minimum pad.

## KI5P03DY

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BVDSS	V <sub>GS</sub> = 0 V, I <sub>D</sub> = -250 μA	-30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -24 V, V <sub>GS</sub> = 0 V			-1	μA
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> = ±20 V, V <sub>DS</sub> = 0 V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	-1	-1.7	-3	V
Static Drain-Source	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10 V, I <sub>D</sub> = -5.3 A		38	50	mΩ
		V <sub>GS</sub> = -10 V, I <sub>D</sub> = -5.3 A, T <sub>J</sub> = 125°C		54	79	
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -4.2A,		55	80	
On-State Drain Current	I <sub>D(on)</sub>	V <sub>GS</sub> = -10 V, V <sub>DS</sub> = -5 V	-20			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = -15 V, I <sub>D</sub> = -5.3 A		12		S
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -15 V, V <sub>GS</sub> = 0 V,		690		pF
Output Capacitance	C <sub>oss</sub>	f = 1.0 MHz		306		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			77		pF
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -15 V, I <sub>D</sub> = -1 A,		7	14	ns
Turn-On Rise Time	t <sub>r</sub>	V <sub>GS</sub> = -10 V, R <sub>GEN</sub> = 6 Ω *		10	18	ns
Turn-Off Delay Time	t <sub>d(off)</sub>			19	34	ns
Turn-Off Fall Time	t <sub>f</sub>			11	20	ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -15 V, I <sub>D</sub> = -5.3 A,		14	23	nC
Gate-Source Charge	Q <sub>gs</sub>	V <sub>GS</sub> = -10 V *		2.4		nC
Gate-Drain Charge	Q <sub>gd</sub>			4.8		nC
Maximum Continuous Drain-Source Diode Forward Current	I <sub>S</sub>				-5.3	A
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0 V, I <sub>S</sub> = -5.3 A *		-0.86	-1.2	V

\* Pulse Test: Pulse Width < 300 μs, Duty Cycle < 2.0%