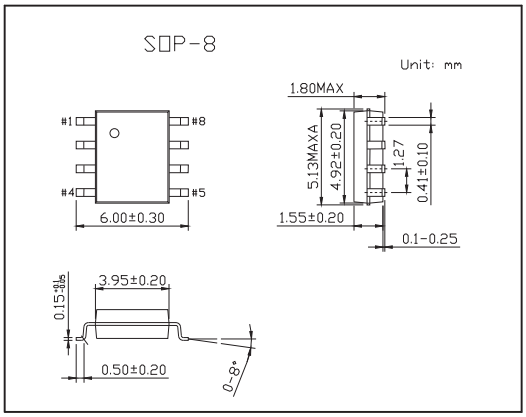
TY Semicondutor®

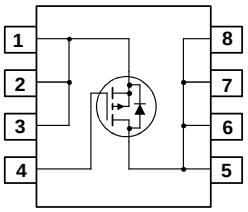
Product specification

KI5P03DY



■ Features

- 5.3 A, -30 V. $R_{DS(ON)}$ = 50 mΩ @ V_{GS} = -10 V
  $R_{DS(ON)}$ = 80 mΩ @ V_{GS} = -4.5 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 Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-30	V
Gate-Source Voltage	V_{GSS}	±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	℃/W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	25	℃/W
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	℃

*1 50℃/W when mounted on a 1 in2 pad of 2 oz copper

*2 105℃/W when mounted on a .04 pad of 2 oz copper

*3 125℃/W when mounted on minimum pad.

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	B_{VDSS}	V_{GS} = 0 V, I_D = -250 μA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-24 V, V_{GS} = 0 V			-1	μA
Gate-Body Leakage	I_{GSS}	V_{GS} = ±20 V, V_{DS} = 0 V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D =-250 μA	-1	-1.7	-3	V
Static Drain-Source	$R_{DS(on)}$	V_{GS} =-10 V, I_D = -5.3 A		38	50	mΩ
		V_{GS} = -10 V, I_D = -5.3 A, T_J=125℃		54	79	
		V_{GS} = -4.5 V, I_D =-4.2A,		55	80	
On–State Drain Current	$I_{D(on)}$	V_{GS} = -10 V, V_{DS} = -5 V	-20			A
Forward Transconductance	g_{FS}	V_{DS} = -15 V, I_D = -5.3 A		12		S
Input Capacitance	C_{iss}	V_{DS} =-15 V, V_{GS} = 0 V,		690		pF
Output Capacitance	C_{oss}	f = 1.0 MHz		306		pF
Reverse Transfer Capacitance	C_{rss}			77		pF
Turn-On Delay Time	$t_{d(on)}$	V_{DD} =-15 V, I_D = -1 A,		7	14	ns
Turn-On Rise Time	t_r	V_{GS} = -10 V, R_{GEN} = 6 Ω *		10	18	ns
Turn-Off Delay Time	$t_{d(off)}$			19	34	ns
Turn-Off Fall Time	t_f			11	20	ns
Total Gate Charge	Q_g	V_{DS} =-15 V, I_D =-5.3 A,		14	23	nC
Gate-Source Charge	Q_{gs}	V_{GS} = -10 V *		2.4		nC
Gate-Drain Charge	Q_{gd}			4.8		nC
Maximum Continuous Drain-Source Diode Forward Current	I_S				-5.3	A
Drain–Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S =-5.3 A *		-0.86	-1.2	V

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