

P-Channel Enhancement Mode MOSFET

SI9435DY

Features

5.3 A, -30 V. $R_{DS(ON)} = 50 \text{ m}\Omega @ V_{GS} = -10 \text{ V}$

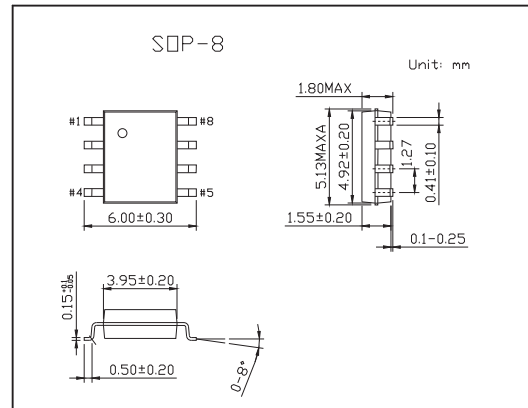
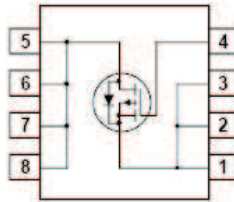
$R_{DS(ON)} = 80 \text{ m}\Omega @ V_{GS} = -4.5 \text{ V}$

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_{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	$^\circ\text{C}/\text{W}$
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.

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Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BVDSS	VGS = 0 V, ID = -250 μ A	-30			V
Zero Gate Voltage Drain Current	IDSS	VDS = -24 V, VGS = 0 V			-1	μ A
Gate-Body Leakage	IGSS	VGS = \pm 20 V, VDS = 0 V			\pm 100	nA
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = -250 μ A	-1	-1.7	-3	V
Static Drain-Source	RDS(on)	VGS = -10 V, ID = -5.3 A		38	50	m Ω
		VGS = -10 V, ID = -5.3 A, TJ=125°C		54	79	
		VGS = -4.5 V, ID = -4.2A,		55	80	
On-State Drain Current	ID(on)	VGS = -10 V, VDS = -5 V	-20			A
Forward Transconductance	gFS	VDS = -15 V, ID = -5.3 A		12		S
Input Capacitance	Ciss	VDS = -15 V, VGS = 0 V,		690		pF
Output Capacitance	Coss	f = 1.0 MHz		306		pF
Reverse Transfer Capacitance	Crss			77		pF
Turn-On Delay Time	td(on)	VDD = -15 V, ID = -1 A,		7	14	ns
Turn-On Rise Time	tr	VGS = -10 V, RGEN = 6 Ω *		10	18	ns
Turn-Off Delay Time	td(off)			19	34	ns
Turn-Off Fall Time	tf			11	20	ns
Total Gate Charge	Qg	VDS = -15 V, ID = -5.3 A,		14	23	nC
Gate-Source Charge	Qgs	VGS = -10 V *		2.4		nC
Gate-Drain Charge	Qgd			4.8		nC
Maximum Continuous Drain-Source Diode Forward Current	IS				-5.3	A
Drain-Source Diode Forward Voltage	VSD	VGS = 0 V, IS = -5.3 A *		-0.86	-1.2	V

* Pulse Test: Pulse Width 300 μ s, Duty Cycle 2.0%

Marking

Marking	9435
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