

<p>DESCRIPTION</p> <p>The HX8205 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and high density cell Design for ultra low on-resistance. This device is suitable for use as a load switch or in PWM applications.</p> <p>GENERAL FEATURES</p> <ul style="list-style-type: none"> ◇ $V_{DS} = 20V$, $I_D = 4A$ $R_{DS(ON)}(Typ.) = 28m\Omega$ @ $V_{GS} = 2.5V$ $R_{DS(ON)}(Typ.) = 22m\Omega$ @ $V_{GS} = 4.5V$ ◇ High power and current handling capability ◇ Lead free product is acquired ◇ Surface mount package <p>APPLICATION</p> <ul style="list-style-type: none"> ◇ PWM applications ◇ Load switch <p>PACKAGE</p> <ul style="list-style-type: none"> ◇ SOT23-6L 	<p>SCHEMATIC DIAGRAM</p> <p>PIN ASSIGNMENT</p> <p>SOT23-6L (Topview)</p>
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ORDERING INFORMATION

Part Number	Storage Temperature	Package	Marking	Devices Per Reel
HX8205	-55°C to +150°C	SOT23-6L	8205	3000

ABSOLUTE MAXIMUM RATINGS

($T_A = 25^\circ\text{C}$ unless otherwise noted)

parameter	symbol	limit	unit
Drain-source voltage	V_{DS}	20	V
Gate-source voltage	V_{GS}	± 12	V
Continuous drain current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	4.0	A
	$T_A = 70^\circ\text{C}$	3.0	
Pulsed drain current ^b	I_{DM}	20	
Continuous source current (diode conduction) ^a	I_S	1.2	
Power dissipation ^a	$T_A = 25^\circ\text{C}$	1.4	W
	$T_A = 70^\circ\text{C}$	0.9	
Operating junction and storage temperature range	T_J, T_{stg}	-55—150	°C

THERMAL CHARACTERISTICS

Parameter		Symbol	Typ	Max	Unit
Maximum junction-to-ambient ^a	≤ 10 s	R _{θJA}	70	90	°C/W
	Steady-State		100	125	
Maximum junction-to-foot	Steady-State	R _{θJC}	63	80	

Notes

- a. Surface mounted on 1" x 1" FR4 board
b. Pulse width limited by maximum junction temperature

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

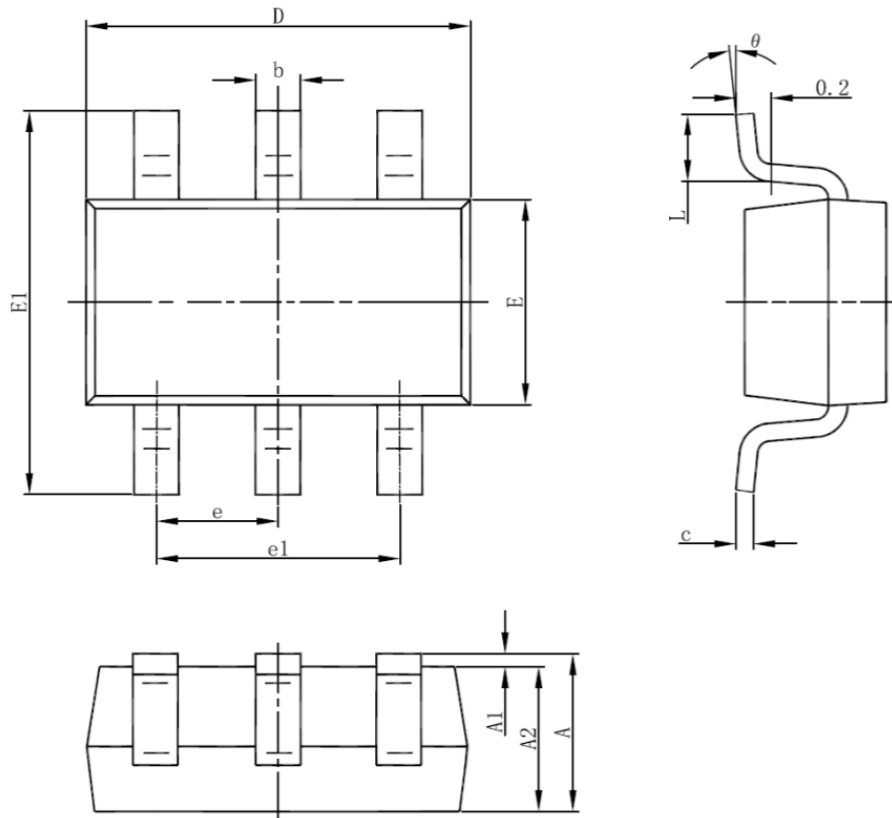
Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	-	-	1	μA
Gate-body leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±12V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.45	0.65	1.2	V
Drain-source on-state resistance ^a	R _{DS(ON)}	V _{GS} =4.5V, I _D =4.0A	-	22	26	mΩ
		V _{GS} =2.5V, I _D =3.0A	-	28	35	
Forward transconductance ^a	g _{fs}	V _{DS} =5V, I _D =4A	-	10	-	S
Dynamic Characteristics ^b						
Input capacitance	C _{ISS}	V _{DS} =10V, V _{GS} =0V f=1.0MHz	-	600	-	pF
Output capacitance	C _{OSS}		-	330	-	
Reverse transfer capacitance	C _{RSS}		-	140	-	
Switching Characteristics						
Turn-on delay time	t _{D(ON)}	V _{DD} =10V R _L =3 ohm V _{GEN} =4.5V R _{GEN} =6ohm	-	18	-	ns
Rise time	t _r		-	5	-	
Turn-off delay time	t _{D(OFF)}		-	43	-	
Fall time	t _f		-	20	-	
Total gate charge	Q _g	V _{DS} =10V I _D =4A V _{GS} =4.5V	-	11	-	nC
Gate-source charge	Q _{gs}		-	2.3	-	
Gate-drain charge	Q _{gd}		-	2.5	-	
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode forward voltage	V _{SD}	V _{GS} =0V, I _S =2A	-	0.76	1.16	V

Notes

- a. Pulse test: Pulse width ≤ 300 μs, duty cycle ≤ 2 %
b. Guaranteed by design, not subject to production testing

PACKAGE INFORMATION

- SOT23-6L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°