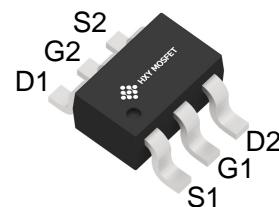




Description

The HXY3439UI uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.



SOT-363

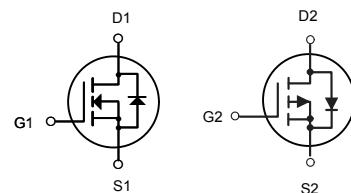
$V_{DS} = 20V$ $I_D = 0.75A$

$R_{DS(ON)} < 380m\Omega$ @ $V_{GS}=4.5V$

$V_{DS} = -20V$ $I_D = -0.66A$

$R_{DS(ON)} < 570m\Omega$ @ $V_{GS}=-4.5V$

General Features



N-Channel MOSFET

P-Channel MOSFET

Wireless charging

Boost driver

Brushless motor

Application

Ordering Information

Product ID	Pack	Brand	Qty(PCS)
HXY3439UI	SOT-363	HXY MOSFET	3000

Absolute Maximum Ratings ($T_c=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Rating		Units
		N-Channel	P-Channel	
V_{DS}	Drain-Source Voltage	20	-20	V
V_{GS}	Gate-Source Voltage	± 12	± 12	V
$I_D @ T_A=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	0.75	-0.66	A
I_{DM}	Pulsed Drain Current	1.8	-1.2	A
T_{STG}	Storage Temperature Range	-55 to 150	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	-55 to 150	$^\circ C$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	833		$^\circ C/W$



N-Ch MOSFET Electrical Characteristics (Ta=25 °C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)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 current	I _{GSS}	V _{GS} =±10V, V _{DS} = 0V			±20	uA
Gate threshold voltage (note 2)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.35		1.1	V
Drain-source on-resistance(note 2)	R _{DS(on)}	V _{GS} = 4.5V, I _D = 0.65A		210	380	mΩ
		V _{GS} = 2.5V, I _D = 0.55A		320	450	mΩ
		V _{GS} = 1.8V, I _D = 0.45A		390	800	mΩ
Forward tranconductance(note 2)	g _{FS}	V _{DS} = 10V, I _D = 0.8A		1.6		S
Diode forward voltage	V _{SD}	I _S =0.15A, V _{GS} = 0V			1.2	V
Dynamic Characteristics (note 4)						
Input Capacitance	C _{iss}	V _{DS} = 16V, V _{GS} = 0V, f = 1MHz		79	120	pF
Output Capacitance	C _{oss}			13	20	pF
Reverse Transfer Capacitance	C _{rss}			9	15	pF
Switching Characteristics (note 3,4)						
Turn-on delay time	t _{d(on)}	V _{GS} =4.5V, V _{DS} =10V, I _D =500mA, R _{GEN} =10Ω		6.7		ns
Turn-on rise time	t _r			4.8		ns
Turn-off delay time	t _{d(off)}			17.3		ns
Turn-off fall time	t _f			7.4		ns

P-Ch MOSFET Electrical Characteristics (Ta=25 °C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)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 current	I _{GSS}	V _{GS} =±10V, V _{DS} = 0V			±20	uA
Gate threshold voltage (note 2)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.35		-1.1	V
Drain-source on-resistance(note 2)	R _{DS(on)}	V _{GS} = -4.5V, I _D = -1A		430	570	mΩ
		V _{GS} = -2.5V, I _D = -0.8A		624	700	mΩ
		V _{GS} = -1.8V, I _D = -0.5A		950		mΩ
Forward tranconductance(note 2)	g _{FS}	V _{DS} = -10V, I _D = -0.54A		1.2		S
Diode forward voltage	V _{SD}	I _S =-0.5A, V _{GS} = 0V			-1.2	V
Dynamic Characteristics (note 4)						
Input Capacitance	C _{iss}	V _{DS} = -16V, V _{GS} = 0V, f = 1MHz		113	170	pF
Output Capacitance	C _{oss}			15	25	pF
Reverse Transfer Capacitance	C _{rss}			9	15	pF
Switching Characteristics (note 3, 4)						
Turn-on delay time	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-200mA, R _{GEN} =10Ω		9		ns
Turn-on rise time	t _r			5.8		ns
Turn-off delay time	t _{d(off)}			32.7		ns
Turn-off fall time	t _f			20.3		ns

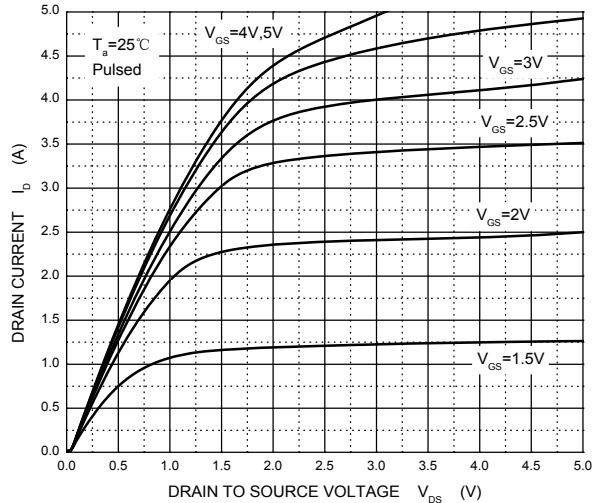
Notes :

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse width=300μs, duty cycle≤2%.
3. Switching characteristics are independent of operating junction temperature.
4. Guaranteed by design, not subject to producting.

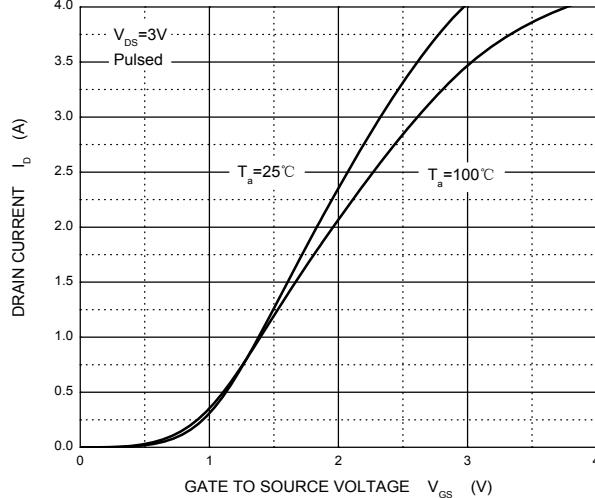


N-Channel Typical Characteristics

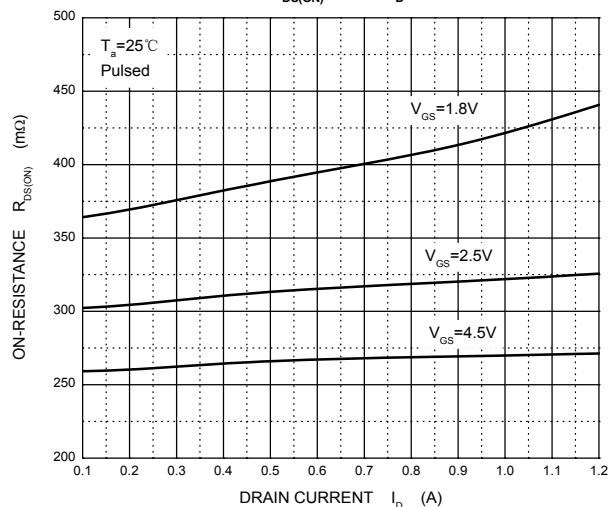
Output Characteristics



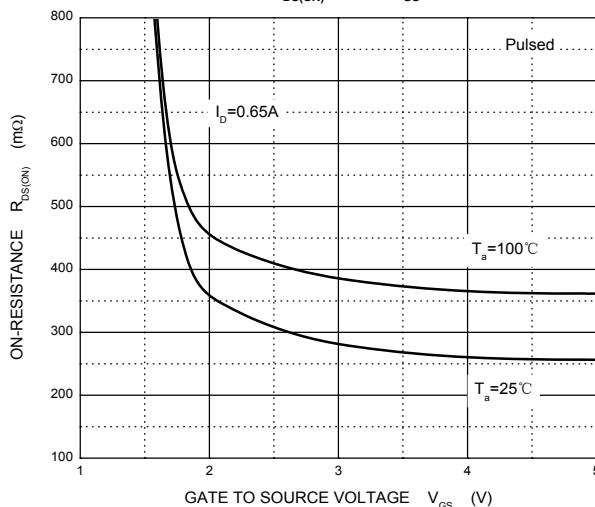
Transfer Characteristics



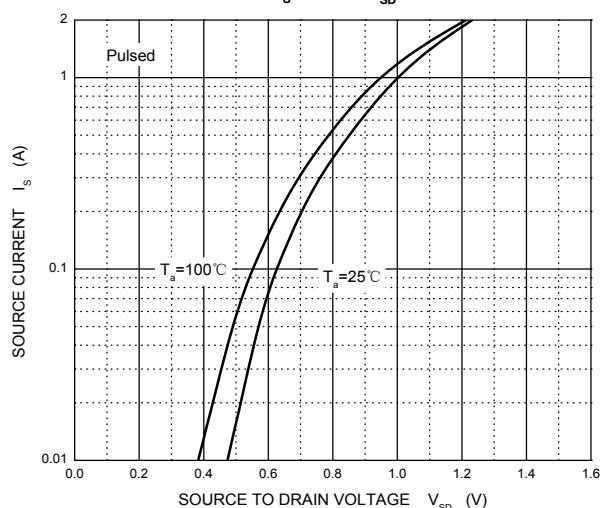
$R_{DS(ON)}$ — I_D



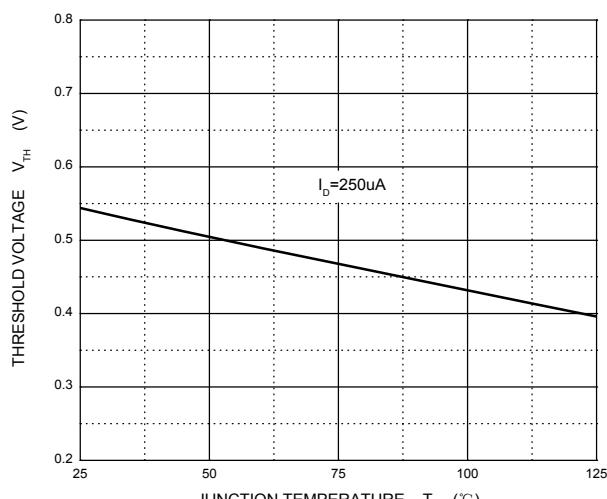
$R_{DS(ON)}$ — V_{GS}



I_s — V_{SD}



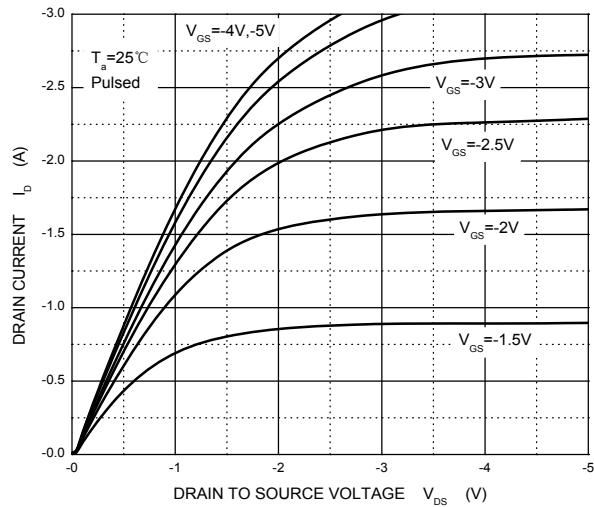
Threshold Voltage



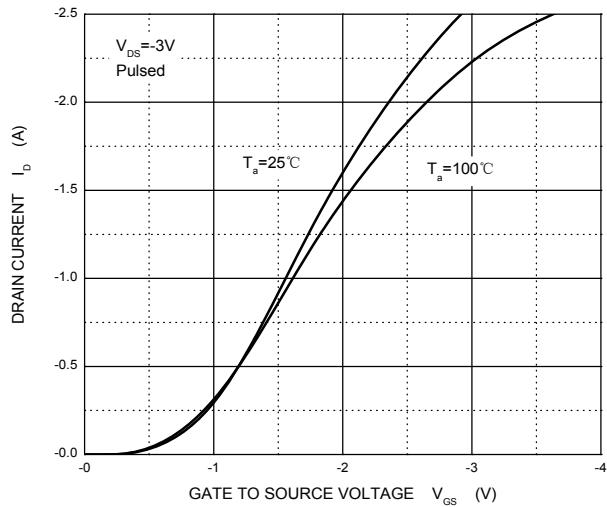


P-Channel Typical Characteristics

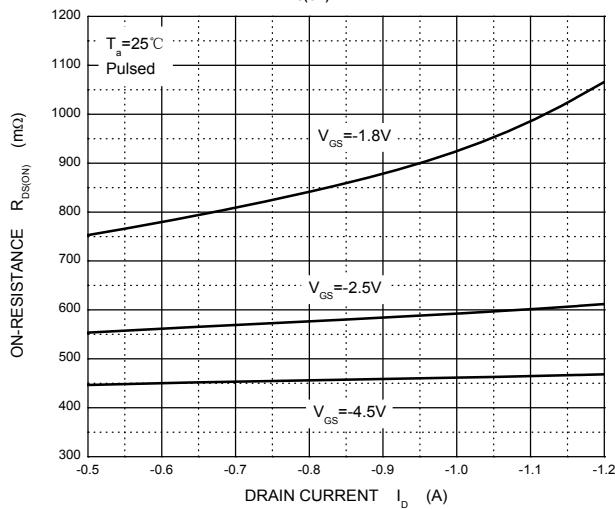
Output Characteristics



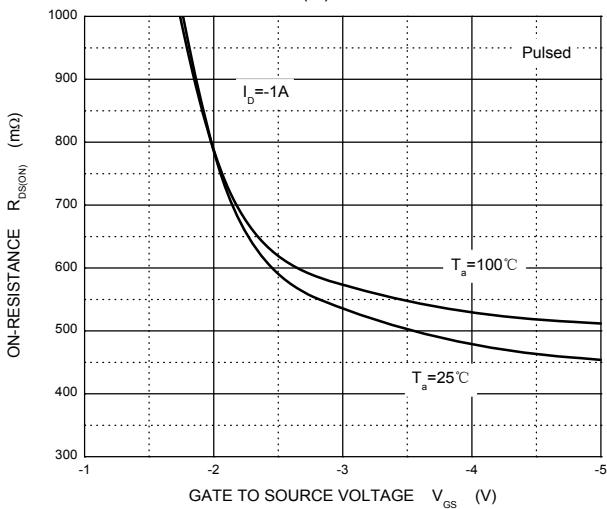
Transfer Characteristics



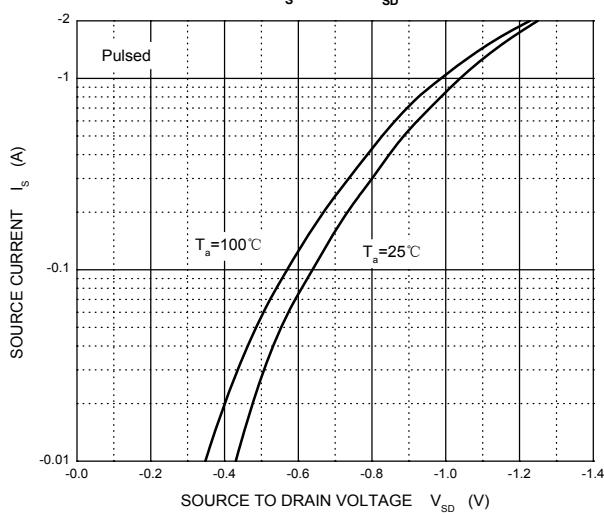
$R_{DS(ON)}$ — I_D



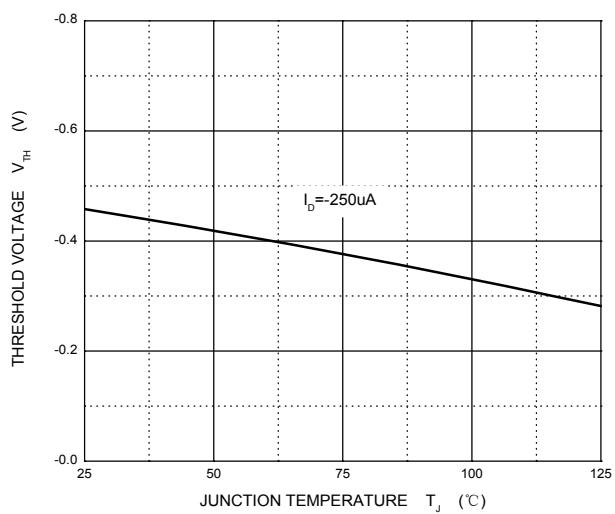
$R_{DS(ON)}$ — V_{GS}



I_s — V_{SD}

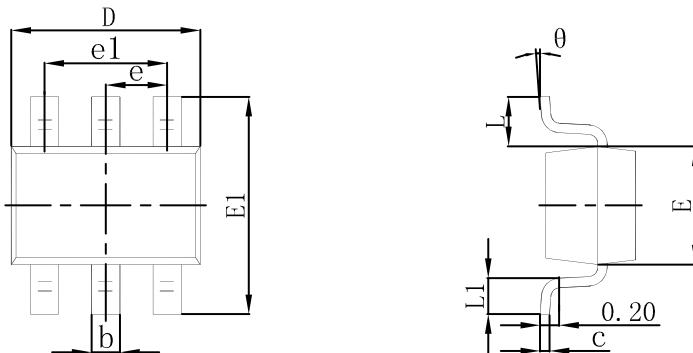


Threshold Voltage



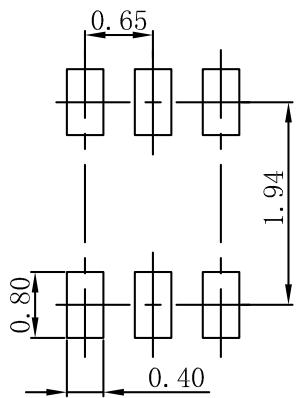


SOT-363 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-363 Suggested Pad Layout



Note:

1. Controlling dimension:in millimeters.
- 2.General tolerance: ± 0.05 mm.
- 3.The pad layout is for reference purposes only.



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