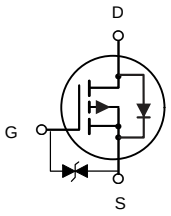
Description

The HXY3139AF3 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

DFN1006-3L
(DFN-3(0.6x1))

General Features

V_{DS} = -20V I_D = -0.8A
$R_{DS(ON)}$ <560 mΩ@ V_{GS}=-4.5V
$R_{DS(ON)}$ <780 mΩ@ V_{GS}=-2.5V
ESD Rating: 1500V HBM



P-Channel MOSFET

Application

Battery protection
Load switch
Uninterruptible power supply

Ordering Information

Product ID	Pack	Brand	Qty(PCS)
HXY3139AF3	DFN1006-3L(DFN-3(0.6x1))	HXY MOSFET	10000

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Drain Current-Continuous	-0.8	A
P_D	Maximum Power Dissipation	100	mW
T_J,T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	°C
$R_{\theta JA}$	Thermal Resistance,Junction-to-Ambient	1250	°C/W

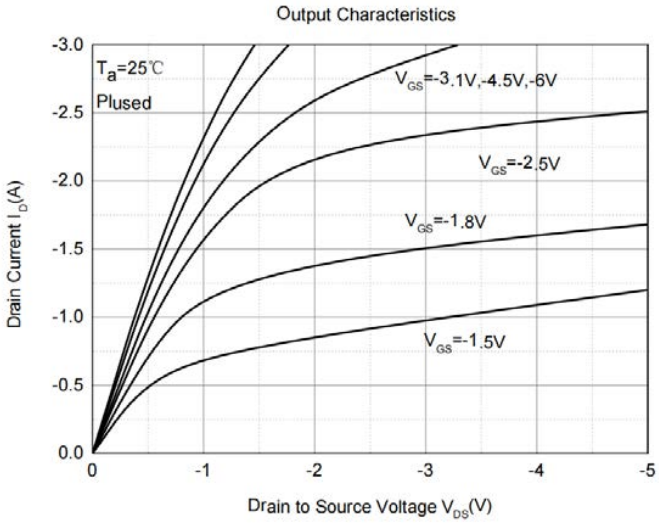
T_a=25°C unless otherwise noted

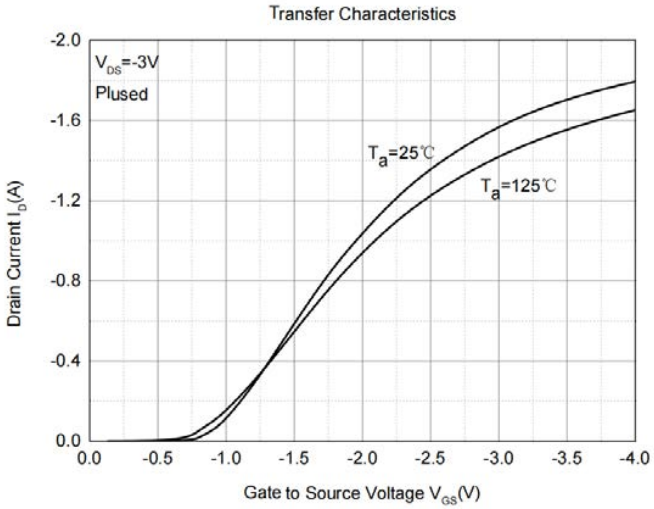
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-20V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±10V, V_{DS} = 0V			±20	uA
Gate threshold voltage (note 2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.35	-0.61	-1.1	V
Drain-source on-resistance(note 2)	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-1A		350	390	mΩ
		V_{GS} =-2.5V, I_D =-0.8A		395	460	mΩ
		V_{GS} =-1.8V, I_D =-0.5A		450		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 Parameters (note 4)						
Input Capacitance	C_{iss}	V_{DS} =-16V,V_{GS} =0V,f =1MHz		113		pF
Output Capacitance	C_{oss}			15		pF
Reverse Transfer Capacitance	C_{rss}			9		pF
Switching Parameters (note 4)						
Turn-on delay time (note 3)	$t_{d(on)}$	V_{DD}=-4.5V,V_{GS}=-10V, I_D=-200mA,R_{GEN}=10Ω		9		ns
Turn-on rise time (note 3)	t_r			5.7		ns
Turn-off delay time (note 3)	$t_{d(off)}$			32.6		ns
Turn-off fall time (note 3)	t_f			20.3		ns

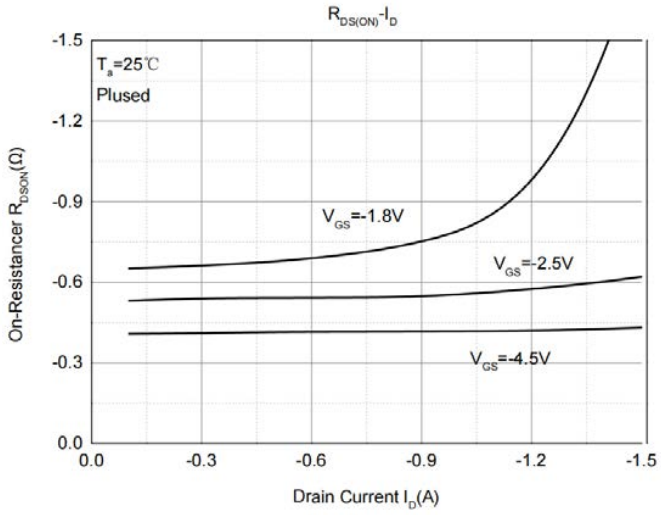
Notes:

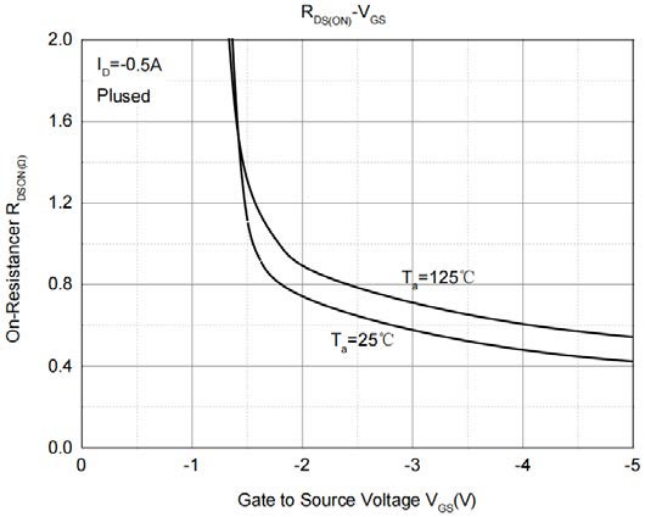
1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producting.

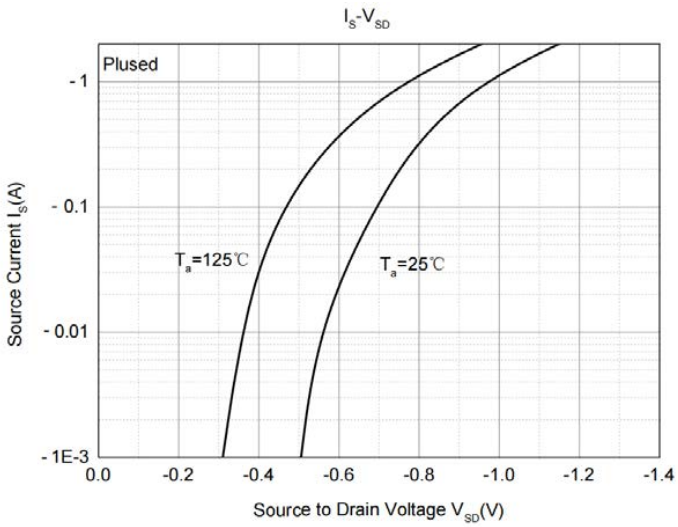
Typical Characteristics

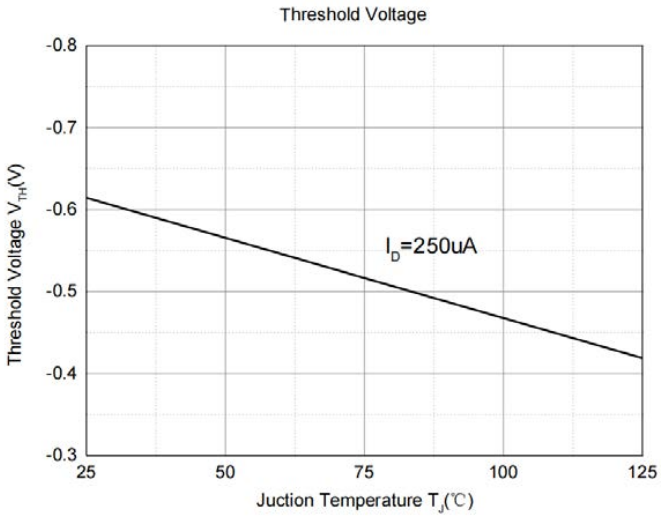




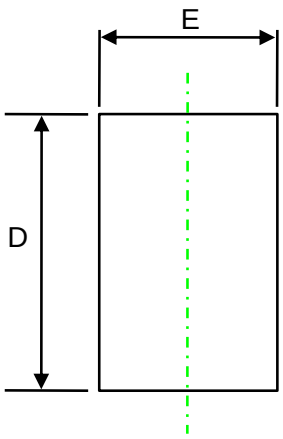




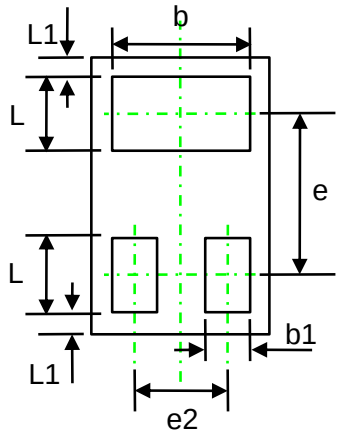




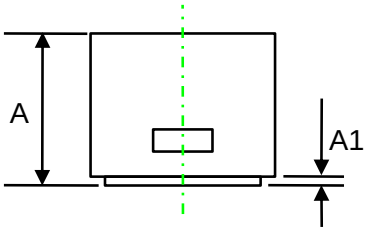
DFN1006-3L(DFN-3(0.6x1)) Package Outline Dimensions



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters (mm)		
	Min.	Typ.	Max.
A	0.44	0.47	0.50
A1	0.00	0.03	0.05
D	0.95	1.00	1.05
E	0.55	0.60	0.65
b	0.45	0.50	0.55
e	-	0.65	-
e2	-	0.35	-
L1	0.05 REF.		
L	0.20	0.25	0.30
b1	0.10	0.15	0.20

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