



E I L Company Ltd.

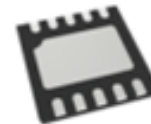
Introduction of Melexis MLX90416/418 Smart Motor Drivers

MAKE IT HAPPEN

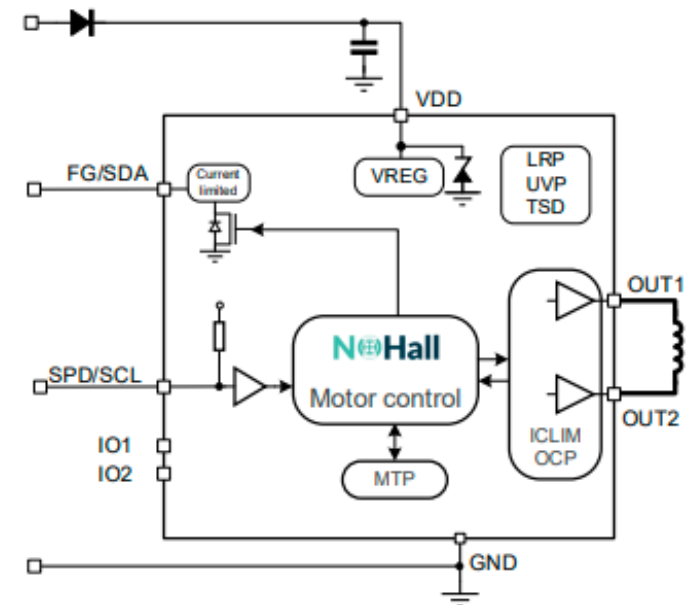


MLX90416/418 introduction

- **N^HHall** Sensorless 1-coil operation
- VDD
 - Operating range [7-28]V / **90418: [7-18]**
 - OVP = 30V
- RDSon = 135 mOhm
- Sleeping mode (<50uA)
- 8A braking current
- 4.0A current limit
 - Up to 2.5A motors
 - Multiple soft switching options, incl Sinewave drive
- Package: DFN10 3x3.5
- Programmable speed curves
- ESD: 4kV HBM, 750V CDM
- HTOL: 3000hrs, Tj=150C



- Protections
 - UVP/OVP
 - OCP
 - LRP (programmable ton/toff)
 - Integrated supply clamp
 - Short between neighboring pins





MLX90416/418 : Soft-Switching

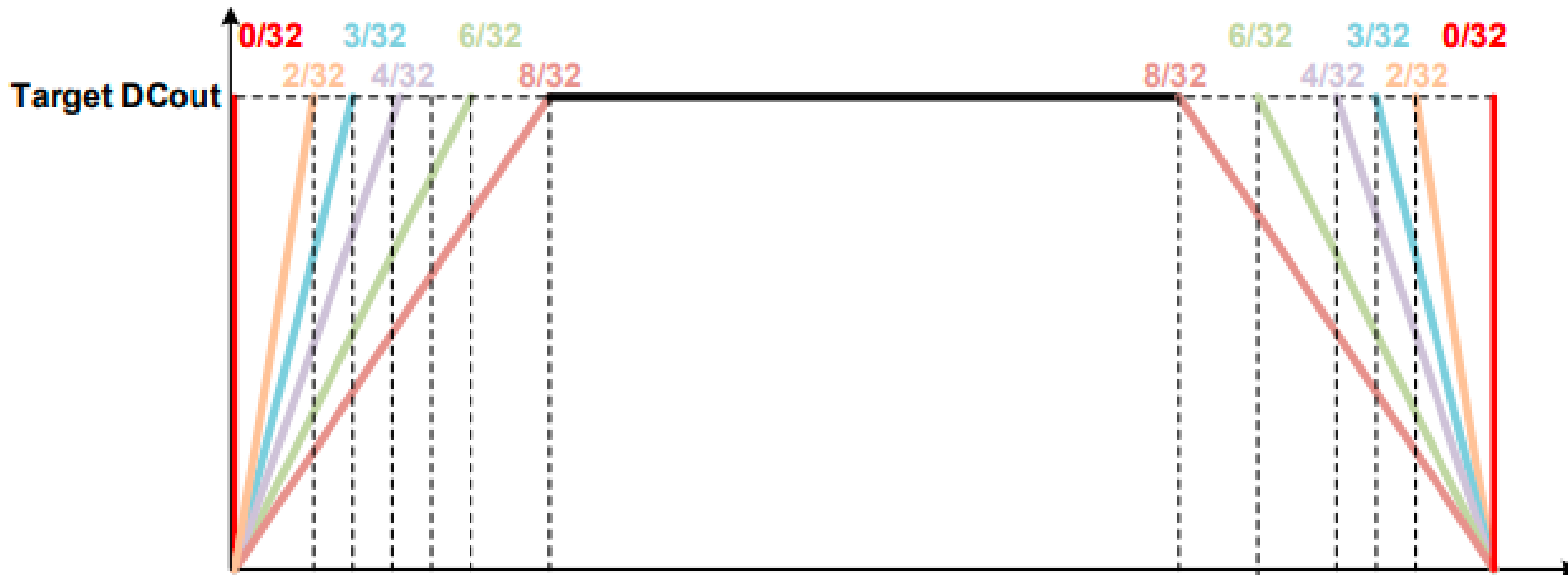


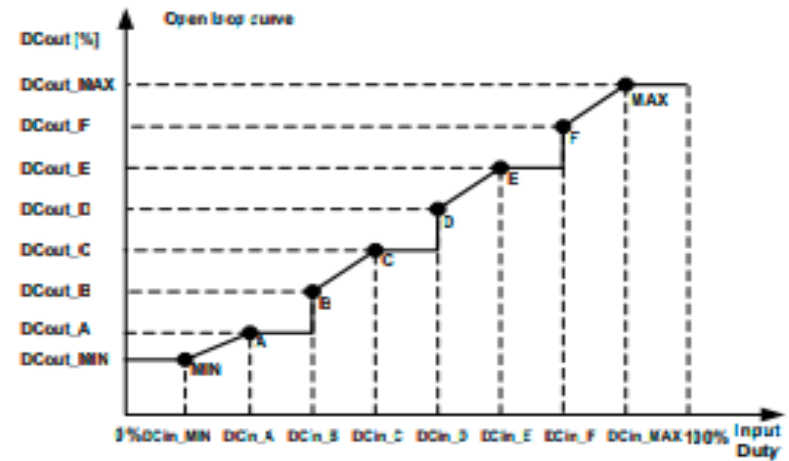
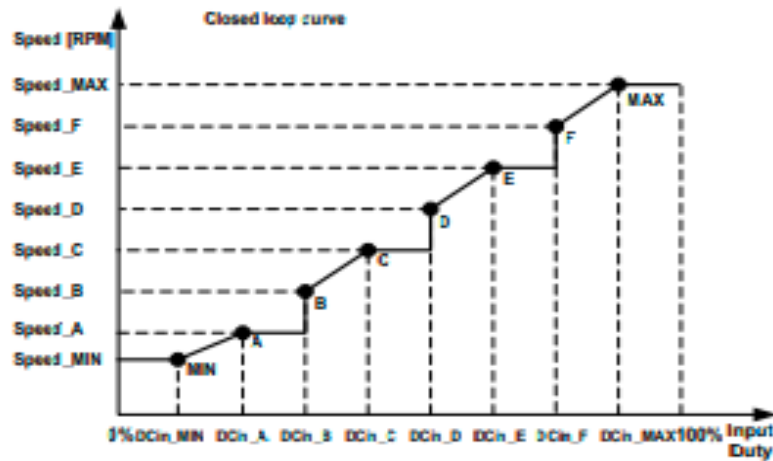
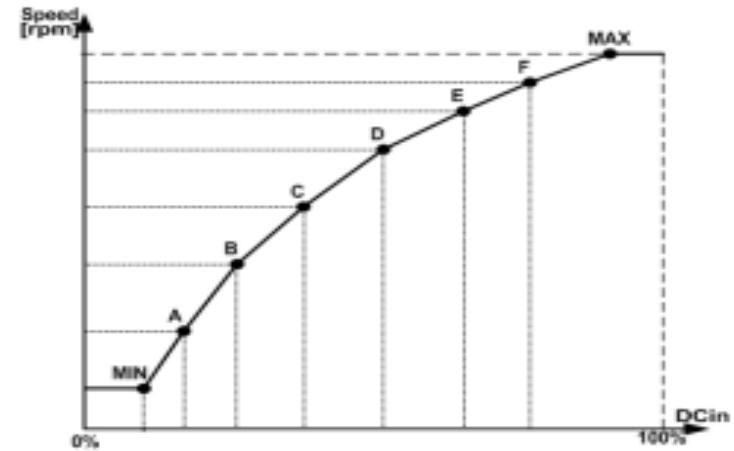
Figure 1 Soft switching options [0/32 – 8/32]



MLX90416/418 : Speed Curves

Speed curves

- Open and closed loop speed control:
- Multiple points configuration
- Bidirectional (in planning)





MLX90416/418 : UI Interfaces

MLX90416/18/19 Fandriver UI

File Help

Connect Disconnect

Melexis

Program mode | Application mode | Memory View

Load/Save Config

Save Config Load Config

Device I2C Actions

Program RAM Read RAM

Program OTP Read OTP

Product: MLX90418 ESB

Motor Parameter Extraction

Measure L&R Lcoil = 0 uH, Rcoil = 0 Ohm (Rloop = 0 Ohm)

Measure Km Km = 0 Volts/eRPM

Parameters

Motor parameters

Motor Tau 310 us

Generic control

ChipID0: 0x0000 ChipID1: 0x0000

Current limit threshold 4000.00mA Position pulse current 2.5A

Speed curve graph

Speed curve points

	Min	A	B	C	D	E	F	Max
Duty In (%)	0.00	2.34	10.16	19.53	50.00	79.69	89.06	99.22
RPM Out (rpm)	0	1992	2988	3984	15000	23965	26953	29941



MLX90416/418 : UI Interfaces

Parameters

Motor parameters

Motor Tau

Generic control

ChipID0: ChipID1:

Current limit threshold Position pulse current

Motor idle state Startup duty

Rising edge soft slope Falling edge soft slope

Diagnostic off time Input mode

Motor start mode POR delay

Brake Window Windmill Window

Lead angle Max Brake BEMF

FG options

Speed curve

Open/Closed Control Open loop duty rate

Closed loop KI Motor construction:

Plateau Full speed

Low side clamp input Low side clamp output

Low side clamp hysteresis High side clamp input

High side clamp output High side clamp hysteresis

ACPL

Duty ramping after ACPL ACPL



MLX90416/418 : UI Interfaces

Program mode | Application mode | Memory View

Actions

Start Stop

PWM duty

Input Duty 0.0%

Real-time measurements

Chip Supply: N/A

Chip Tj: N/A

Speed(duty): 0 rpm (%)

Volts

Seconds

degC

Seconds

30000									
25000									



MLX90416/418 : Target Application

➤ 服务器散热风扇





MLX90416/418 : Target Application

➤ 电机的应用



家用落地扇



台扇/桌面扇



无叶风扇



电动工具



按摩椅



按摩机器人





Contact Information

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Thank you for your attention!