

MP6604A/B/C

4.5V to 45V, 2.5A, Dual H-Bridge Motor Drivers with IN/EN Interface,
PHASE/ENABLE/BRAKE Interface, or HS/LS Interface

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MP6604A/B/C – Target Applications

Stepper Driver Applications Include:

- **Stage Lighting**
- **High-End Security Cameras**
- **Industrial Stepper Drives**
- **CNC Equipment**
- **Robotics**



Stage Lighting



High-End Security Cameras

Brushed DC Motor Driver Applications Include:

- **Printers**
- **Currency Handling Machines**
- **Coffee Machines**
- **Sweeping Robots**
- **Other Home Appliances**



Printers



Coffee Machines

Why Use These Parts?

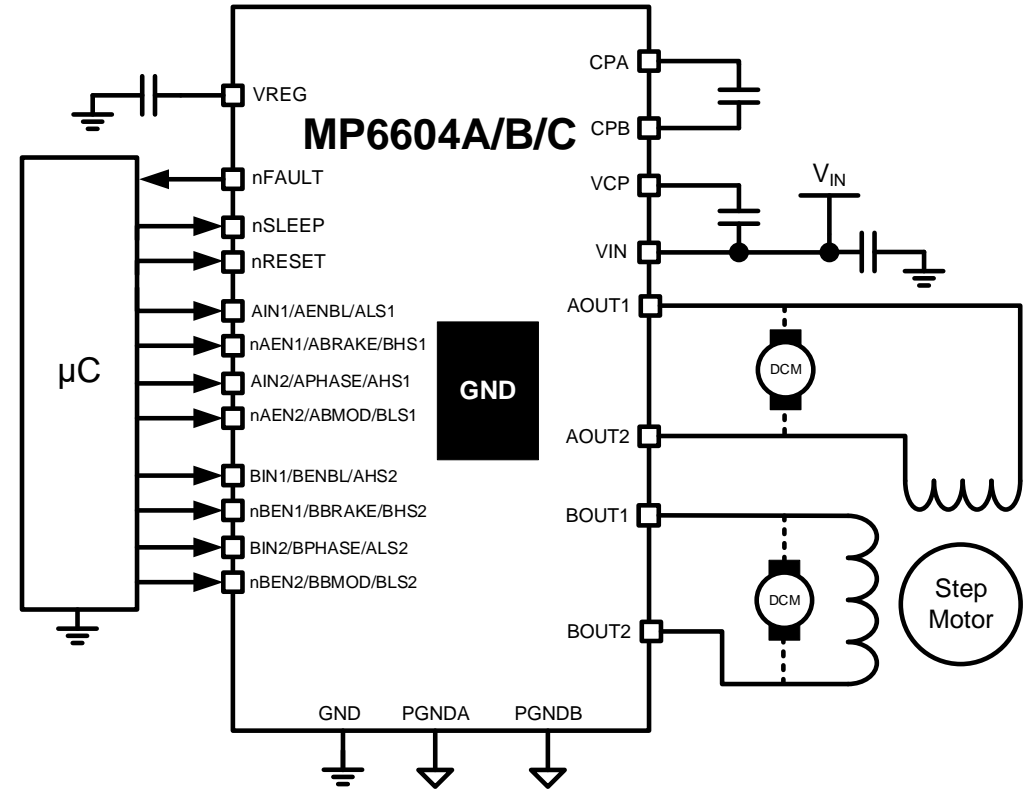
It's Simple and Easy!

- Different Input Control Interface Options Can Flexibly Meet the Applications of Dual Full H-Bridge or Quad Half H-Bridge Drivers
- 150mΩ Low On Resistance ($R_{DS(ON)}$) per MOSFET for 2.5A Maximum Phase Current
- Rich Protection Functions Include Over-Current Protection (OCP), Over-Voltage Protection (OVP), Under-Voltage Lockout (UVLO), Over-Temperature Protection (OTP), and Fault Indication Output

MP6604A/B/C – 4.5V to 45V, 2.5A, Dual H-Bridge Motor Drivers

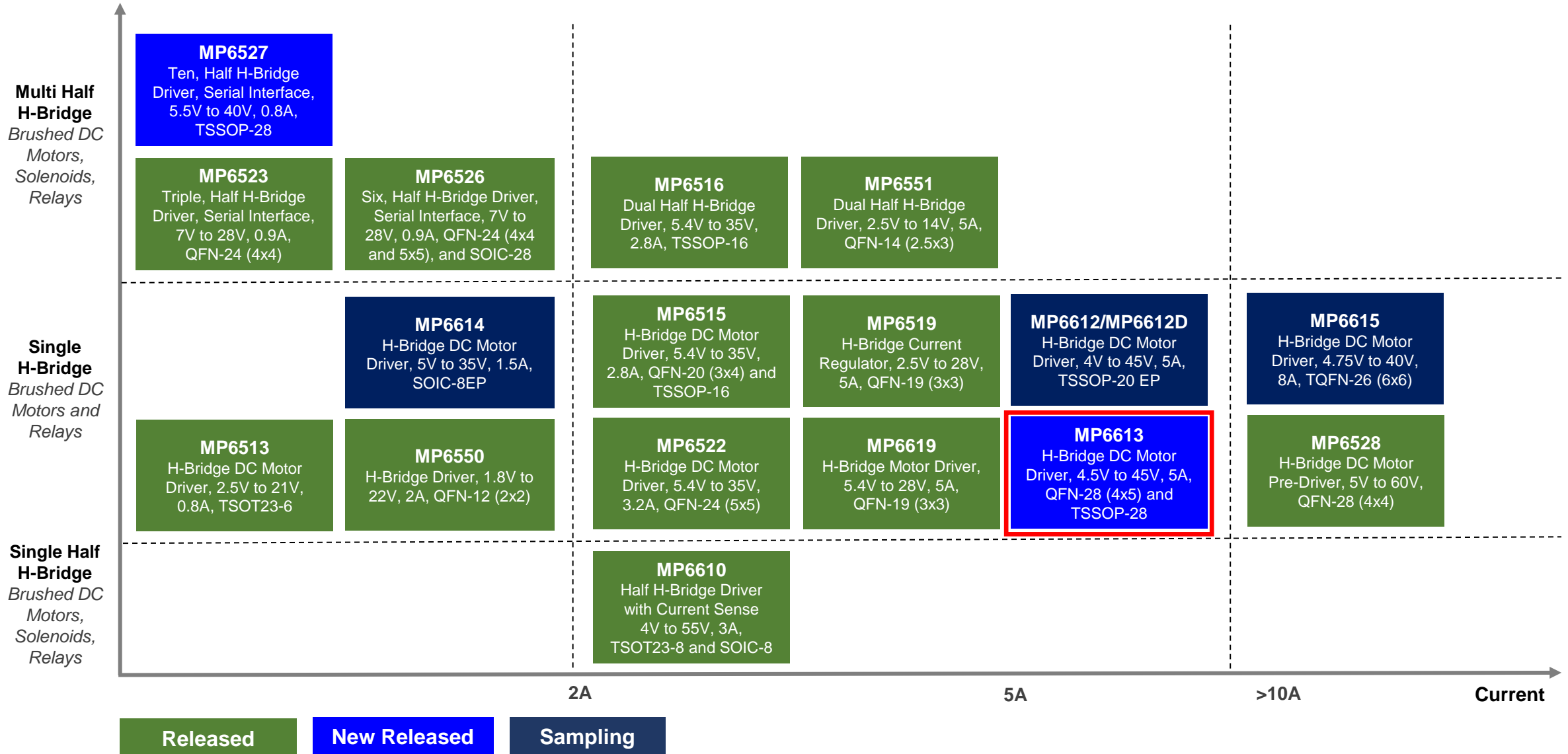
FEATURES

- 4.5V to 45V Operating Input Voltage (V_{IN}) Range
- 2.5A Maximum Output Current (I_{OUT_MAX})
- Dual Full H-Bridge
- 150m Ω Low On Resistance ($R_{DS(ON)}$) per MOSFET
- Different Input Control Interface Options Include:
 - MP6604A: Separate IN and EN Pins per Output Pin
 - MP6604B: PHASE, ENBL, BRAKE Input Signals per H-Bridge
 - MP6604C: Separate HS and LS Input Pins per Output Pin
- Over-Current Protection (OCP)
- Over-Voltage Protection (OVP)
- Under-Voltage Protection (UVP)
- Over-Temperature (OT) Shutdown
- Fault Indication Output
- Available in QFN-28 (4mmx5mm) and TSSOP-28EP Packages

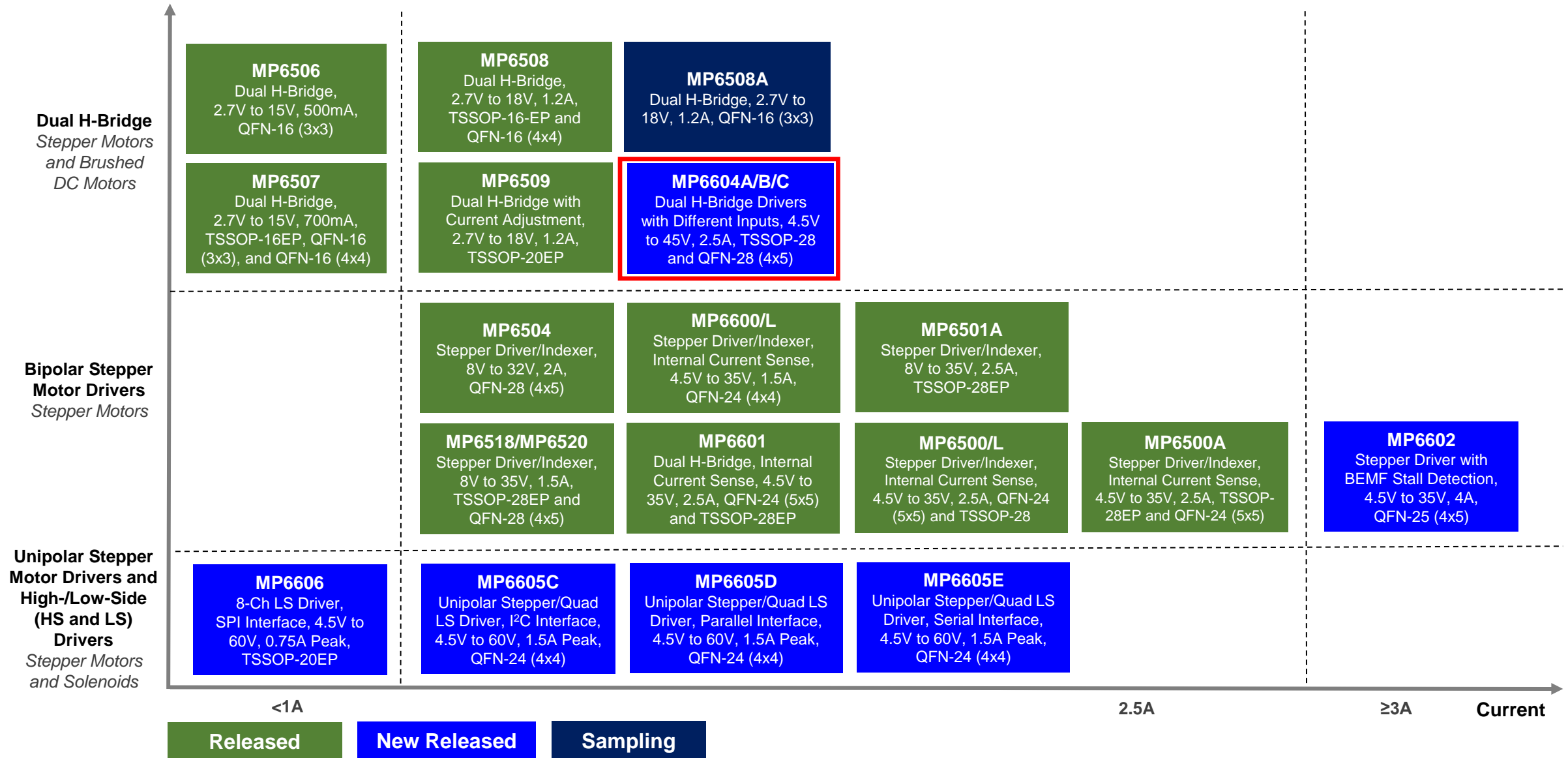


Available in QFN-28 (4mmx5mm) and TSSOP-28EP Packages

H-Bridges (Brushed DC Motors, Solenoids, and Relays)



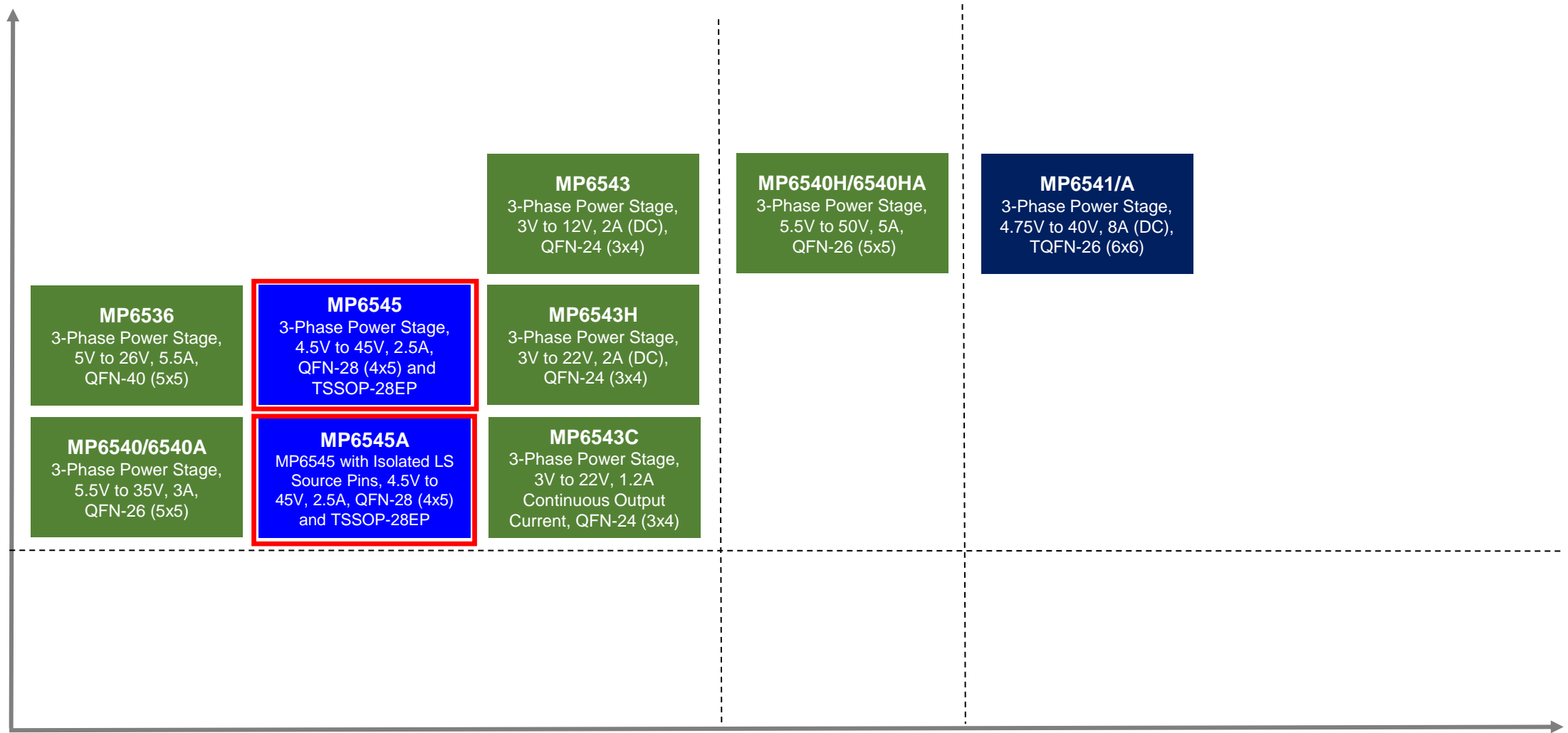
Dual H-Bridges and Stepper Motors



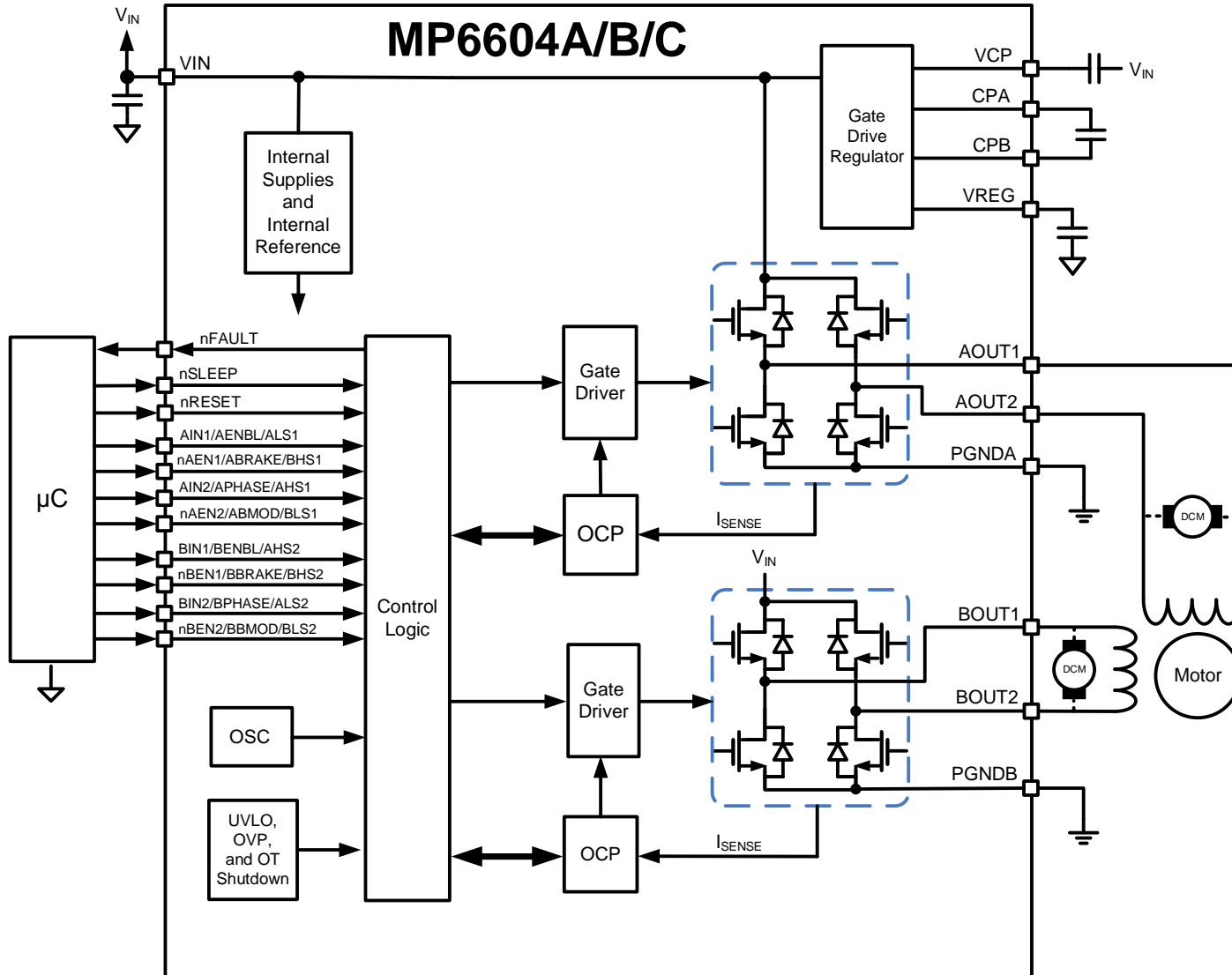
BLDC Motor Driver Power Stages

Three-Phase Power Stage
Three-Phase BLDC Motor Drivers

Single-Phase Power Stage
BLDC and Brushed DC Motor Drivers



MP6604A/B/C – Functional Block Diagram



MP6604A Input Logic

xENx	xINx	xOUTx
1	X	Z
0	0	L
0	1	H

MP6604B Input Logic

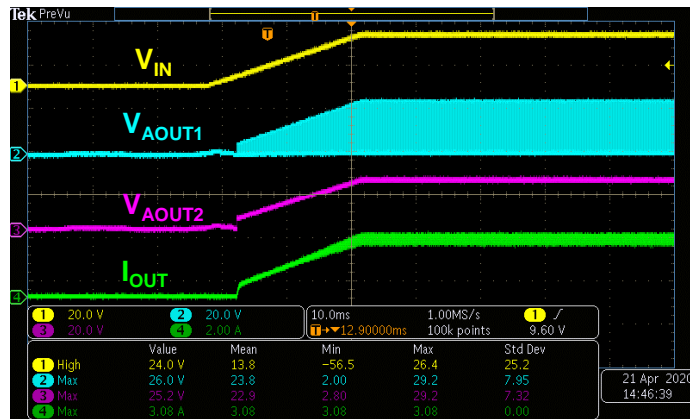
xENBL	xPHASE	xBRAKE	xBMODE	xOUT1	xOUT2
L	X	X	X	Hi-Z	Hi-Z
H	X	H	L	GND	GND
H	X	H	H	VIN	VIN
H	L	L	X	GND	VIN
H	H	L	X	VIN	GND

MP6604C Input Logic

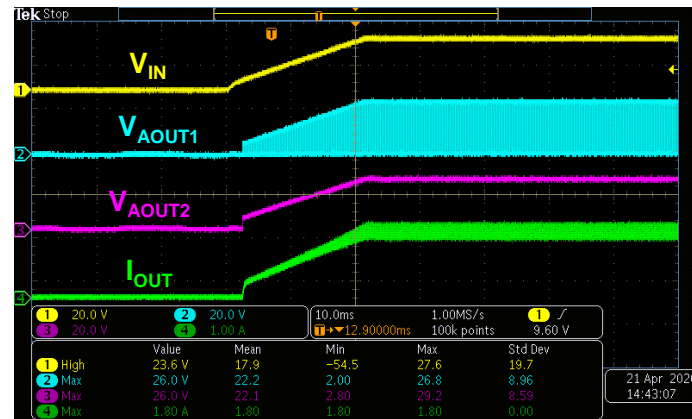
xHSx	xLSx	xOUTx
0	0	Z
0	1	L
1	0	H
1	1	Z

MP6604A/B/C – Start-Up through VIN

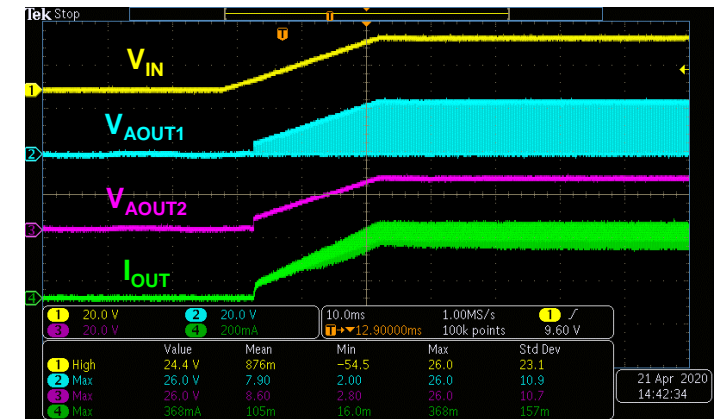
10% Duty



50% Duty



90% Duty

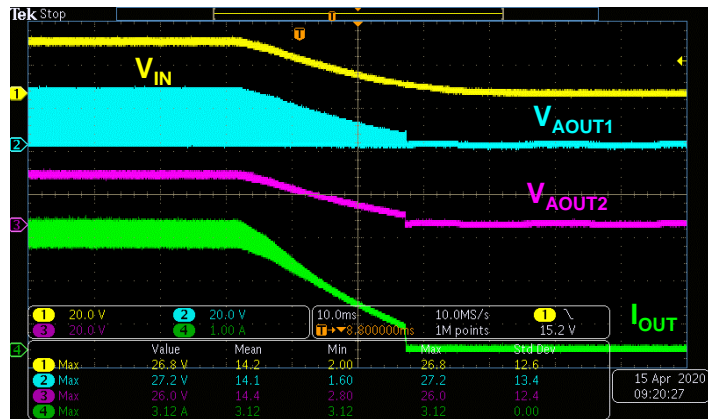


The output current waveforms are smooth.

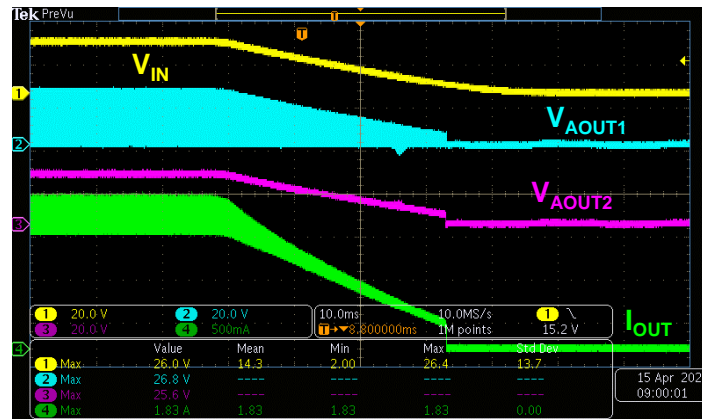
Test Conditions: $V_{IN} = 24V$, $V_{CC} = 5V$, Load = $6\Omega + 1.5mH$

MP6604A/B/C – Shutdown through VIN

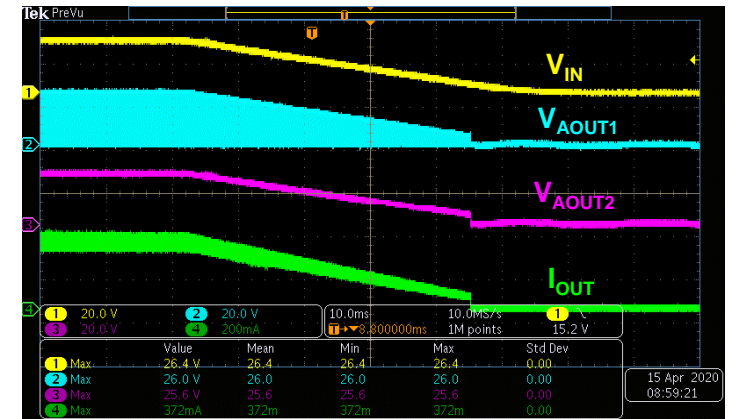
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50% Duty



90% Duty

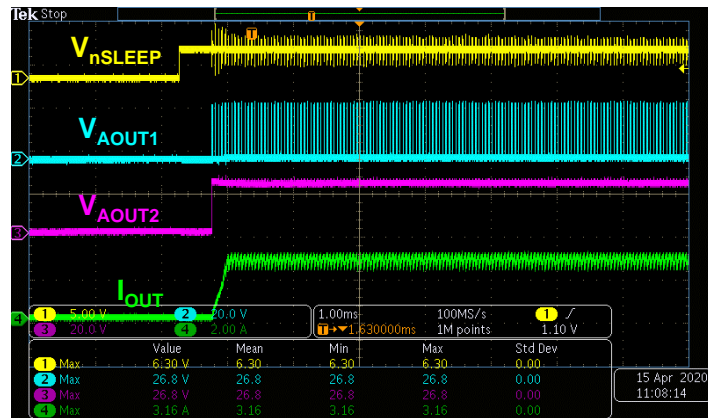


The output current waveforms are smooth.

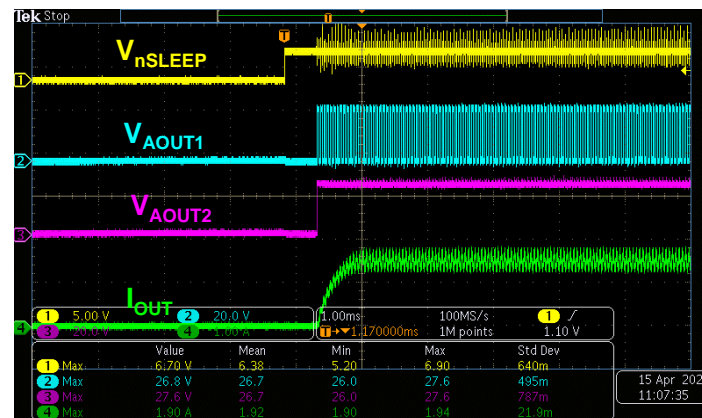
Test Conditions: $V_{IN} = 24V$, $V_{CC} = 5V$, Load = $6\Omega + 1.5mH$

MP6604A/B/C – Start-Up through nSLEEP

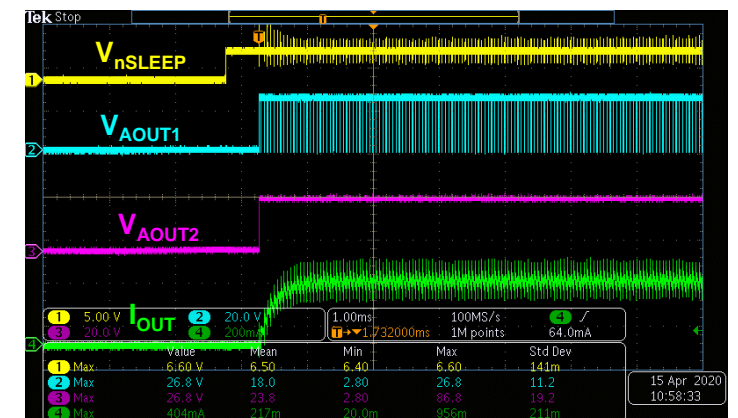
10% Duty



50% Duty



90% Duty

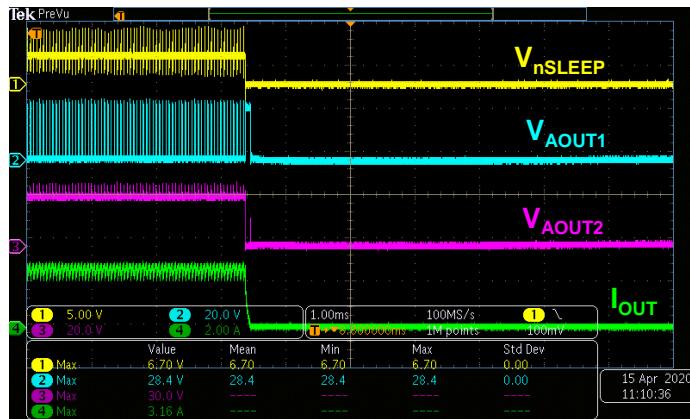


The output current waveforms are smooth.

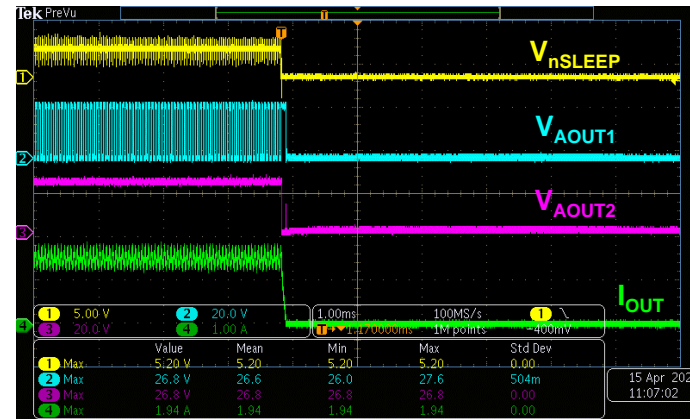
Test Conditions: $V_{IN} = 24V$, $V_{CC} = 5V$, Load = $6\Omega + 1.5mH$

MP6604A/B/C – Shutdown through nSLEEP

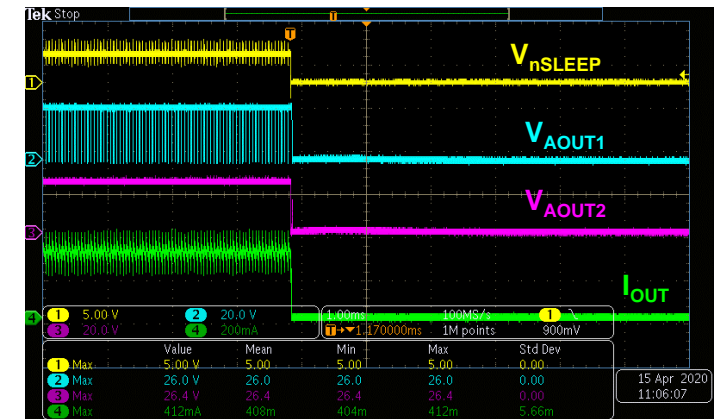
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50% Duty



90% Duty



The output current waveforms are smooth.

Test Conditions: $V_{IN} = 24V$, $V_{CC} = 5V$, Load = $6\Omega + 1.5mH$