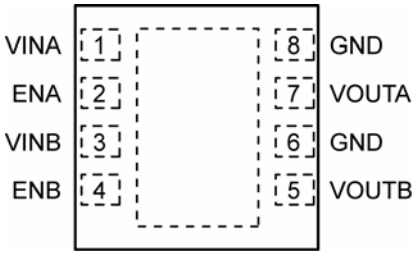
Ordering Information

Part Number	Part Marking*	Soft-Start	Load Discharge	Pb-Free Package
MIC94066YML	P66			2x2 mm MLF™
MIC94067YML	P67		•	
MIC94068YML	P68	•		
MIC94069YML	P69	•	•	

* Note: Over bar symbol may not be to scale

Pin Configuration



Top View
2x2 mm MLF™ (code)

Pin Description

Pin Number	Pin Name	Pin Function
1	$V_{IN}A$	Source of P-channel MOSFET.
2	ENA	Enable (Input): Active-high CMOS compatible control input for switch A. Do not leave floating.
3	$V_{IN}B$	Source of P-channel MOSFET.
4	ENB	Enable (Input): Active-high CMOS compatible control input for switch A. Do not leave floating.
5	$V_{OUT}B$	Drain of P-channel MOSFET.
6	GND	Ground. Both ground pins must be grounded.
7	$V_{OUT}A$	Drain of P-channel MOSFET.
8	GND	Ground. Both ground pins must be grounded.

Absolute Maximum Ratings[1]

Input Voltage (V_{IN}) ..... +6V
Enable Voltage (V_{EN}) ..... +6V
Continuous Drain Current (I_D) [3]
T_A = 25°C ..... ±2A
T_A = 85°C ..... ±1.4A
Pulsed Drain Current (I_{DP}) [4] ..... ±6A
Continuous Diode Current (I_S) [4] ..... –50mA
Storage Temperature (T_s) ..... –55°C to +150°C
EDS Rating – HBM [6] 4KV

Operating Ratings[2]

Input Voltage (V_{IN}) ..... +1.7 to +5.5V
Junction Temperature (T_A) ..... –40°C to +125°C
Package Thermal Resistance
2x2 MLF (Θ_{JA}) ..... 90°C/W
2x2 MLF (Θ_{JC}) [3] ..... 45°C/W

Electrical Characteristics

V_{IN} = 5V; T_A = 25°C, bold values indicate –40°C≤ T_A ≤ +85°C, unless noted.

Symbol	Parameter	Condition	Min	Typ	Max	Units
V_{EN_TH}	Enable Threshold Voltage	V_{IN} = 1.8V to 4.5V, I_D = –250µA	0.5		1.2	V
		V_{IN} = 1.7V to 4.5V, I_D = –250µA	0.4		1.2	V
I_{EN}	Enable Input Current	V_{IN} = V_{EN} = 5.5V		2	4	µA
I_{VIN}	OFF State Leakage Current	V_{IN} = +5.5V, V_{EN} = 0V			1	µA
$R_{DS(ON)}$	P-Channel Drain to Source On Resistance	V_{IN} = +4.5V, ID = –100mA, V_{EN} = 1.5V		85	115	mΩ
		V_{IN} = +3.6V, ID = –100mA, V_{EN} = 1.5V		100	140	mΩ
		V_{IN} = +2.5V, ID = –100mA, V_{EN} = 1.5V		145	200	mΩ
		V_{IN} = +1.8V, ID = –100mA, V_{EN} = 1.5V		155	215	mΩ
		V_{IN} = +1.7V, ID = –100mA, V_{EN} = 1.5V		165	225	mΩ
$R_{SHUTDOWN}$	Turn-off Impedance	V_{IN} = +3.6V, I_{TEST} = 1mA, V_{EN} = 0V MIC94067, 69		200	300	Ω

Dynamic

Symbol	Parameter	Condition	Min	Typ	Max	Units
t_{ON_DLY}	Turn-On Delay Time	V_{IN} = +3.6V, ID = –100mA, V_{EN} = 1.5V MIC94066, 67		0.85	1.5	µs
		V_{IN} = +3.6V, ID = –100mA, V_{EN} = 1.5V MIC94068, 69		700	1200	µs
t_{ON_RISE}	Turn-On Rise Time	V_{IN} = +3.6V, ID = –100mA, V_{EN} = 1.5V MIC94066, 67	0.5	1	5	µs
		V_{IN} = +3.6V, ID = –100mA, V_{EN} = 1.5V MIC94068, 69	500	800	1500	µs
t_{OFF_DLY}	Turn-Off Delay Time	V_{IN} = +3.6V, ID = –100mA, V_{EN} = 1.5V MIC94066, 67		115	200	ns
		V_{IN} = +3.6V, ID = –100mA, V_{EN} = 1.5V MIC94068, 69		100	200	ns

Dynamic (cont.)

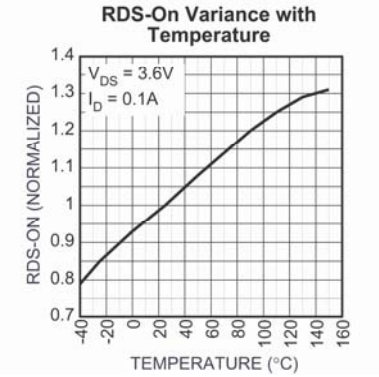
t_{OFF_FALL}	Turn-Off Fall Time	V_{IN} = +3.6V, ID = –100mA, V_{EN} = 1.5V MIC94066, 67		60	100	ns
		V_{IN} = +3.6V, ID = –100mA, V_{EN} = 1.5V MIC94068, 69		60	100	ns

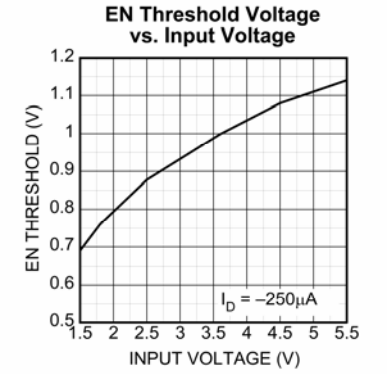
Notes:

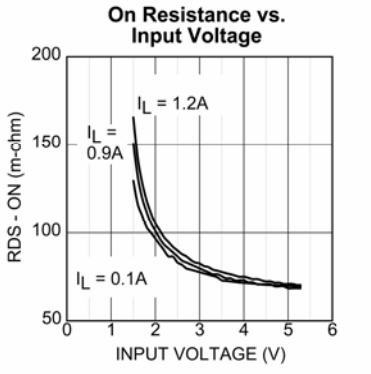
1. Exceeding the absolute maximum rating may damage the device.
2. The device is not guaranteed to function outside its operating rating.
3. With backside thermal contact to PCB.
4. Pulse width <300µs with < 2% duty cycle.
5. Continuous body diode current conduction (reverse conduction, i.e. V_{OUT} to V_{IN}) is not recommended.
6. Devices are ESD sensitive. Handling precautions recommended. HBM (Human body model), 1.5k in series with 100pF.

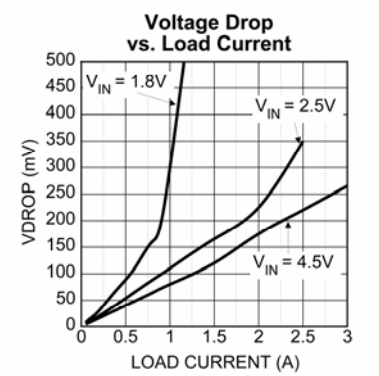
Typical Characteristics

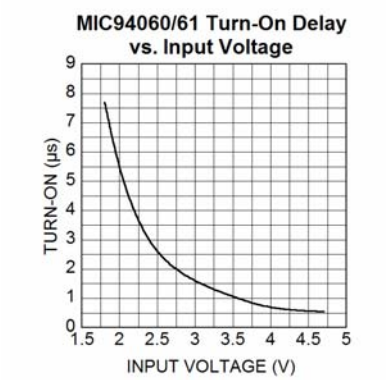
R_L = 100mA, C_L = 0µF for the following plots

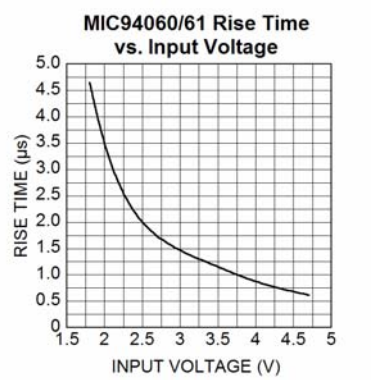


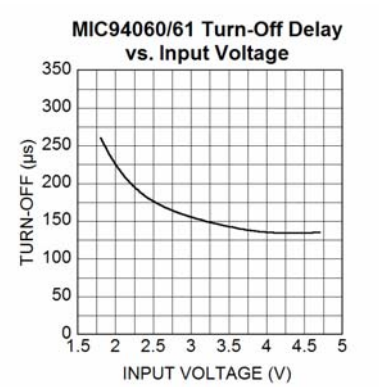


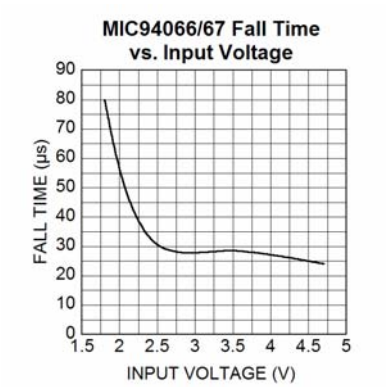


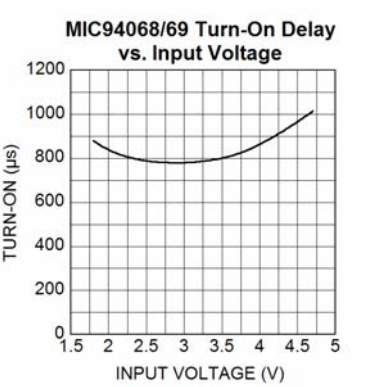


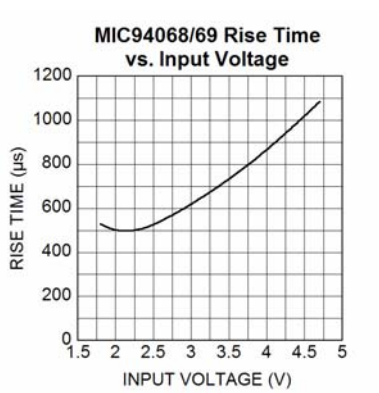


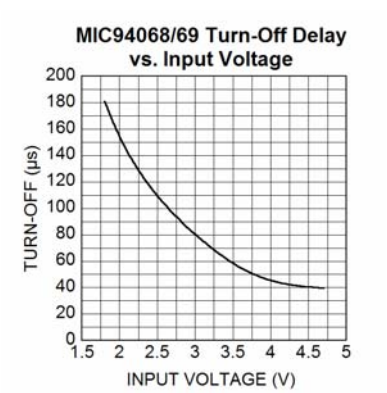


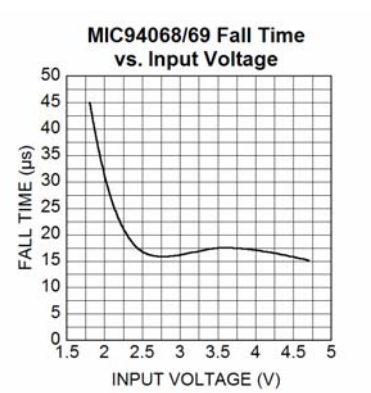






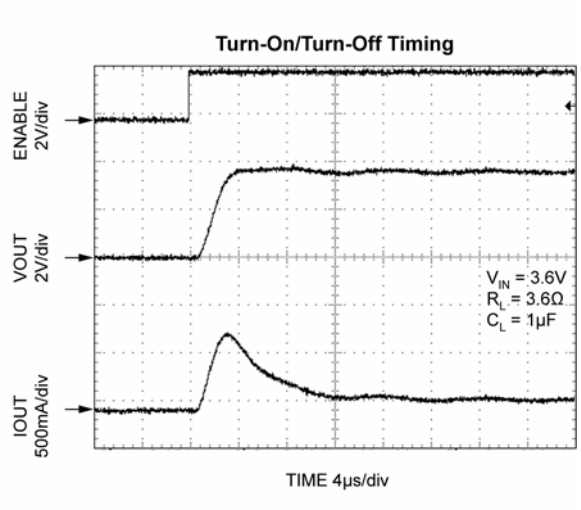


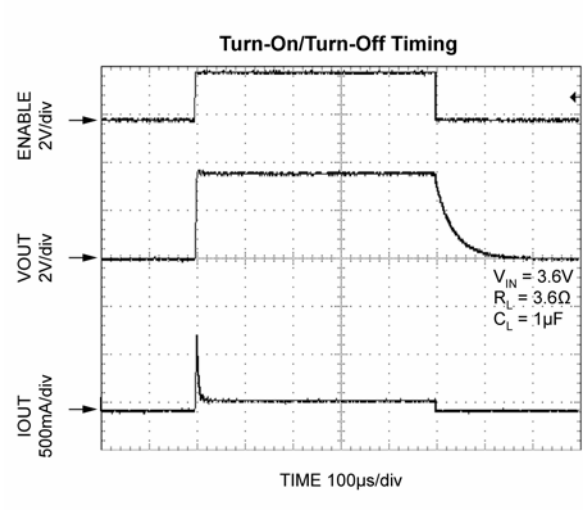


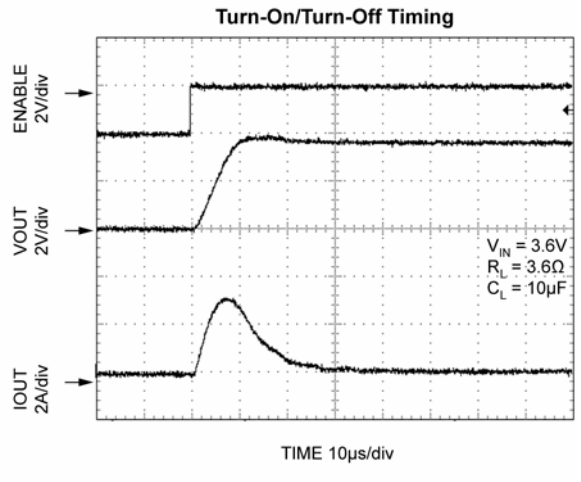


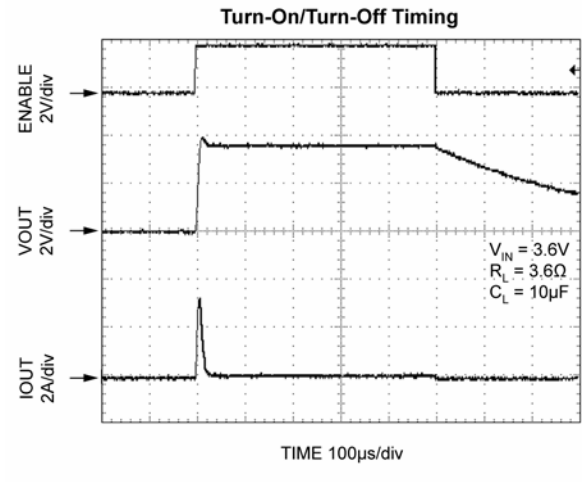
Functional Characteristics

MIC94066

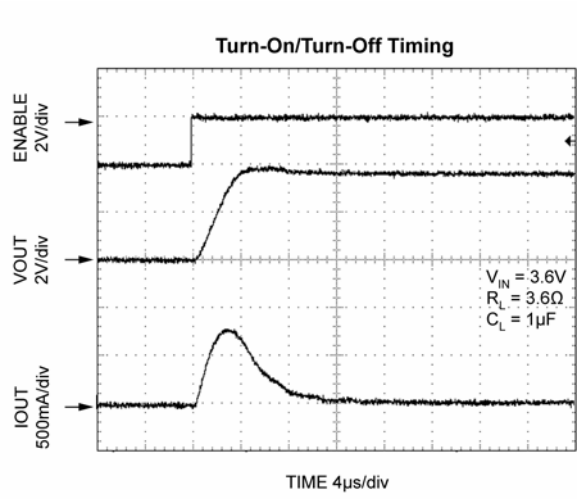


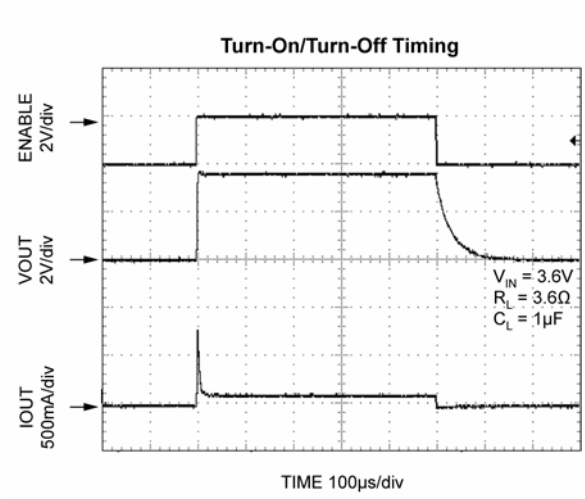


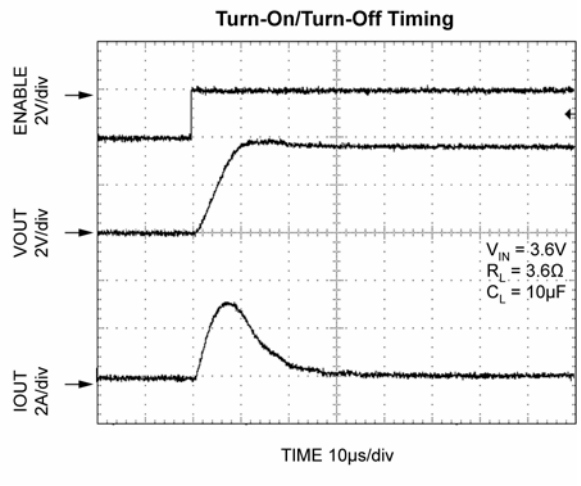


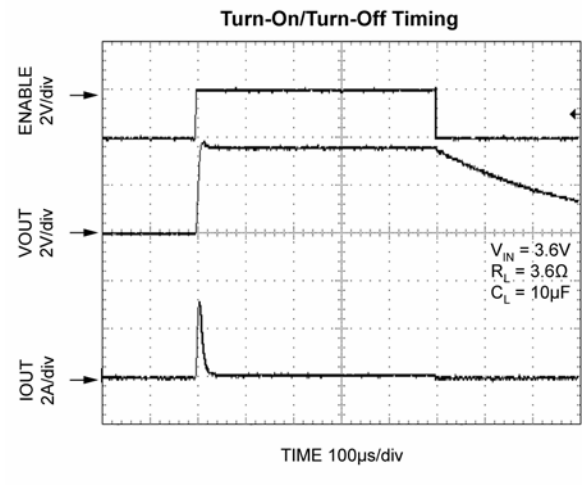


MIC94067

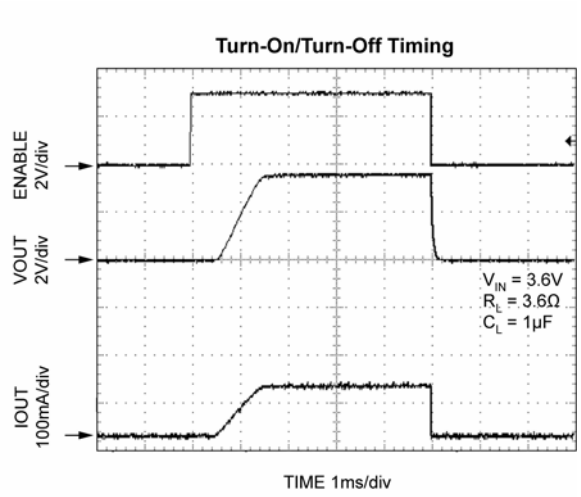


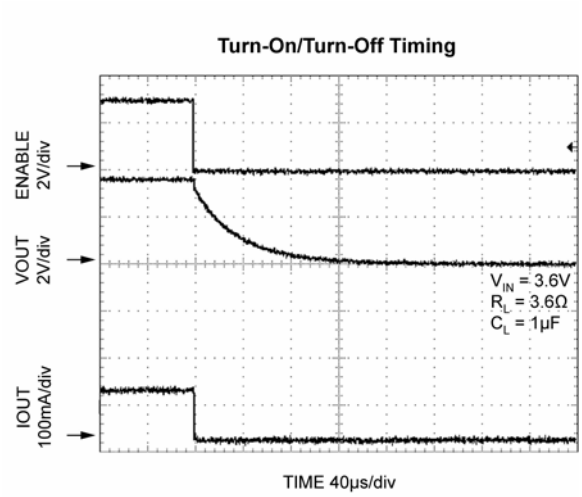


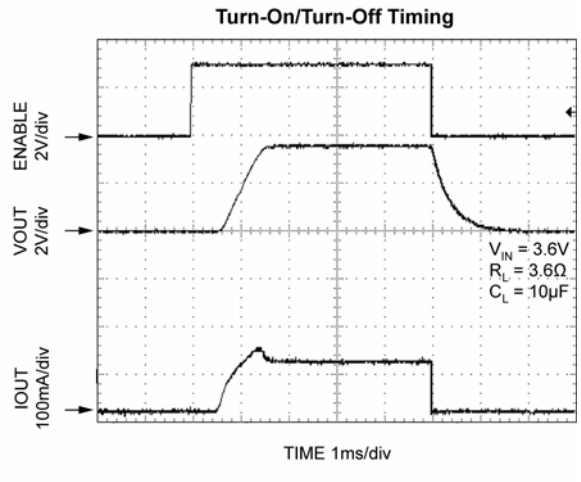


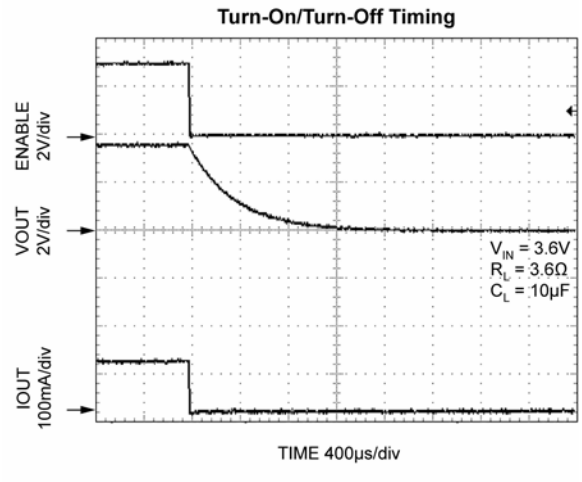


MIC94068









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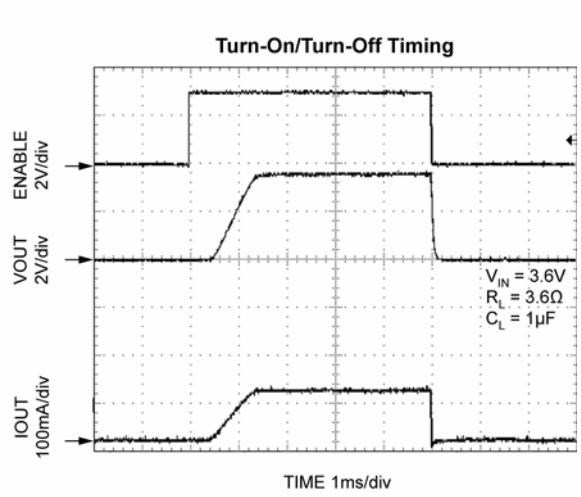
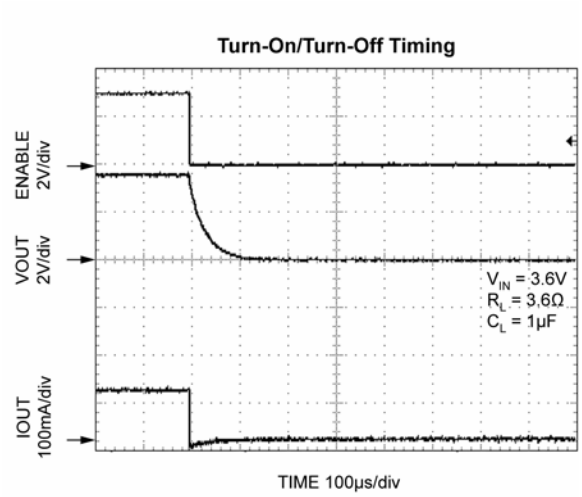
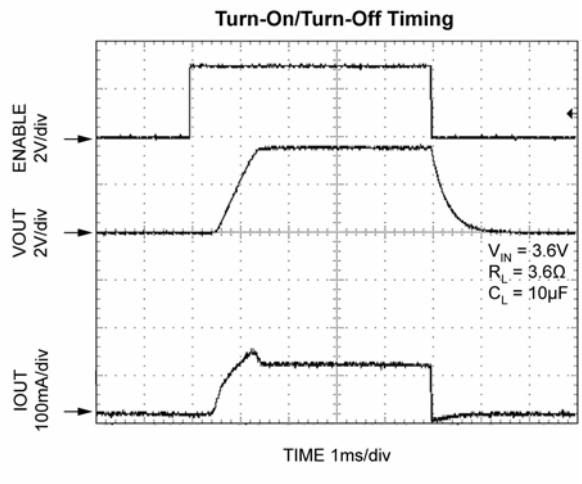
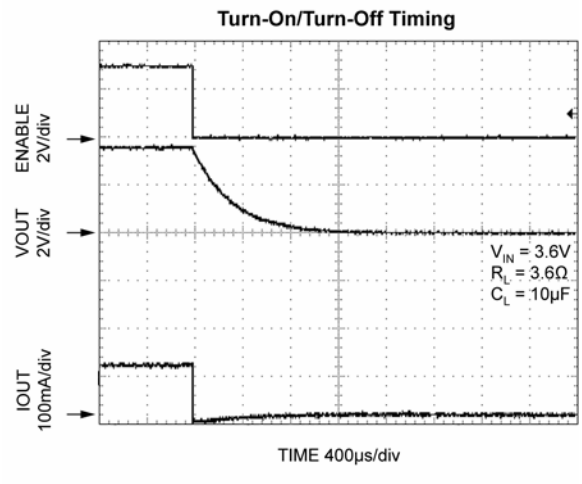
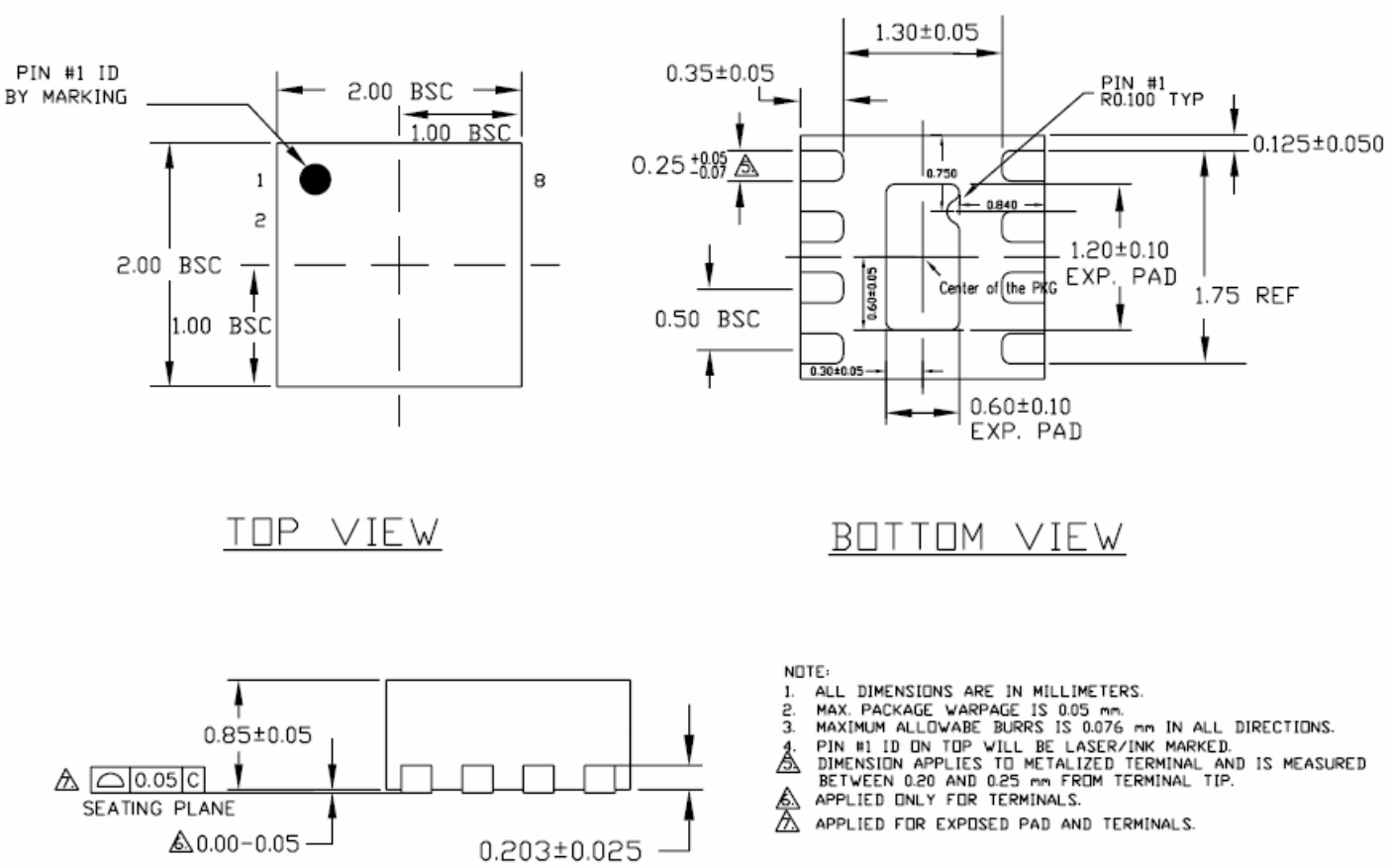








Package Information



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