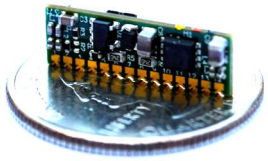
400X, 400L, 400T
Dual MOSFET Switch Mini Module
From CW to Ultra-High Speed Pulsed Systems



XSYSTOR

PRODUCT FLYER
July 2017

General Description

The 400 Series Dual MOSFET Mini Switch offers high-performance with ease of integration. Like the 100/200 Series, the tiny footprint allows direct placement near the RF chokes of two or more GaN device. While each MOS switch has continuous 8A rating, the higher thermal resistance of the module limits the average current to 4A. These Switches are driven by the 100 or 200 Series Controllers. They come in Dual MOS for CW operation, or Complementary MOS for Pulsed-mode requiring <<200nsec Rise and Fall Times.

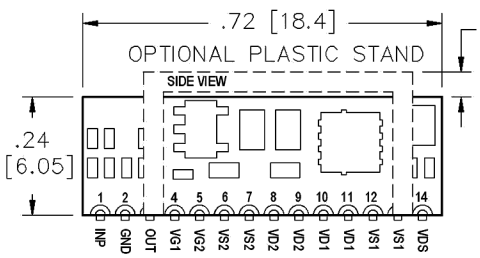
Features

- Rated for 100V
- Ultra-low Rds ON
- Operation up to 125°C, with derated voltage and current.
- Ideal for 2-Stage Amps, Balanced Amps, and for Single GaN with critical rise and fall time requirements.
- Total switching times of <500 nsec when used together with 100 or 200 Series GaN Controllers.
- RoHS* Compliant

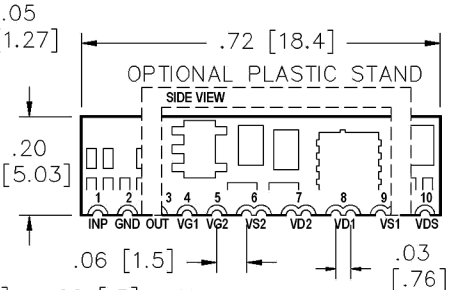
INP	INPUT FROM CONTROLLER DRIVER
GND	GROUND
OUT	OUTPUT TO MOSFET GATES
VG1,VD1,VS1	GATE, DRAIN, SOURCE OF MOS #1
VG2,VD2,VS2	GATE, DRAIN, SOURCE OF MOS #2
VDS	POSITIVE VOLTAGE SUPPLY

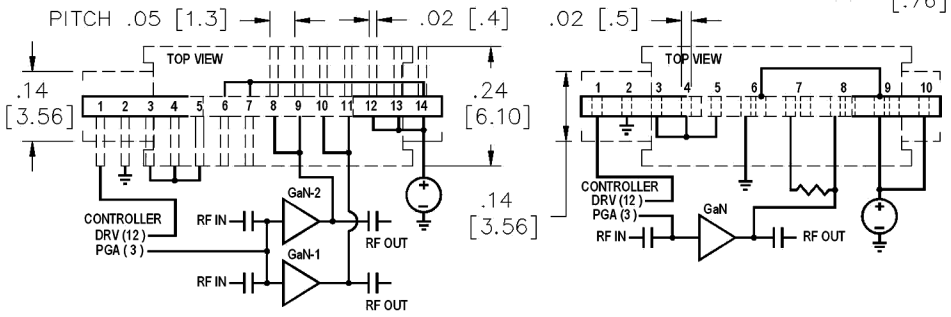
Typical Connection Diagrams

400X, 400T



400L

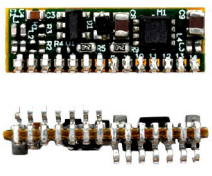




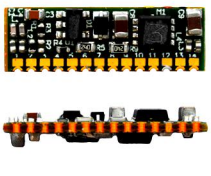
Dual Switch

Complementary MOS

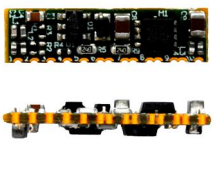
400T



400X



400L



Specification Snapshot

Parameter	Min	Max
Source Voltage, MOS	+20 V	+65 V
Gate Voltage, MOS	0 V	+20 V
Drain Voltage, MOS	+20 V	+65 V
Drain Current, Peak		8 A
Drain Current, Average, CW		4 A
Rds ON		0.18 Ω
Turn-ON Prop Delay (T_Delay 2)		100 ns
Turn-ON Rise Time (T_Rise 1)		70 ns
Turn-OFF Prop Delay (T_Delay 6) Complementary Pair Only		150 ns
Turn-OFF Fall Time (T_Fall 3)		100 ns
Period for Pulsed Signals		5 ms
Duty Cycle for Pulsed Signals		20 %
Soldering Temp (10 sec)		+260°C
Operating Temperature	-40°C	+85°C
Storage Temperature	-65°C	+150°C

Propagation Delay is measured from 90% of Drive Signal from Controller to 10% of Drain Voltage Output with load of 1KΩ. Faster speeds occur with decreased load resistance. Rise/Fall Times are measured at 10% and 90% of signal. Both measurements are summed for total time.

Ordering Information

410X0000 410L0000 410T0000	8A PEAK, 4A AVG MAX, DUAL P-CHAN MOSFET SWITCH, CW
420X0000 420L0000 420T0000	8A PEAK, 4A AVG MAX, DUAL P-CHAN MOSFET SWITCH, PULSED MODE
430XT000 430LT000 430TT000	8A PEAK, 4A AVG MAX, COMPLEMENTARY MOS SWITCH PAIR, PULSED, TTL ENABLE

X = STANDARD

L = LOW PROFILE

T = OPT PINS AT 0.05" [1.3mm] PITCH

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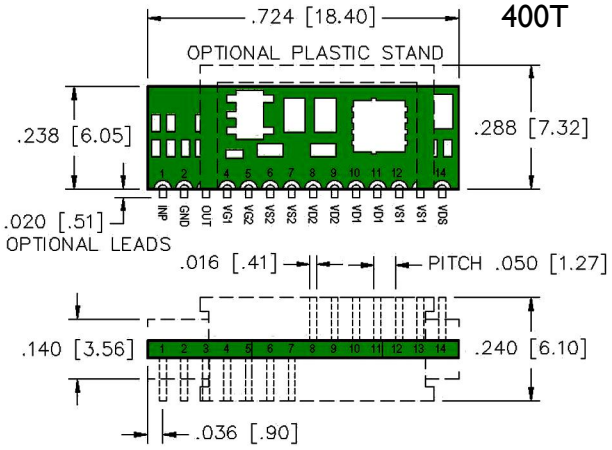
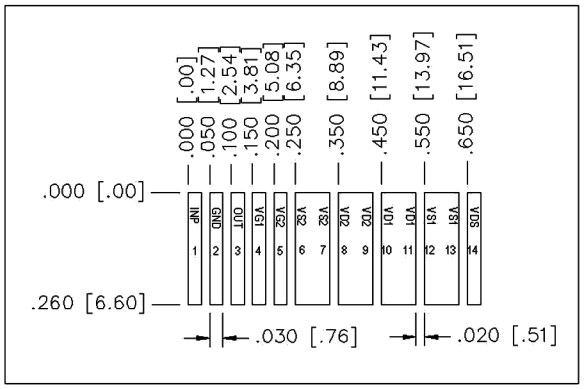
Outline & Land Pattern

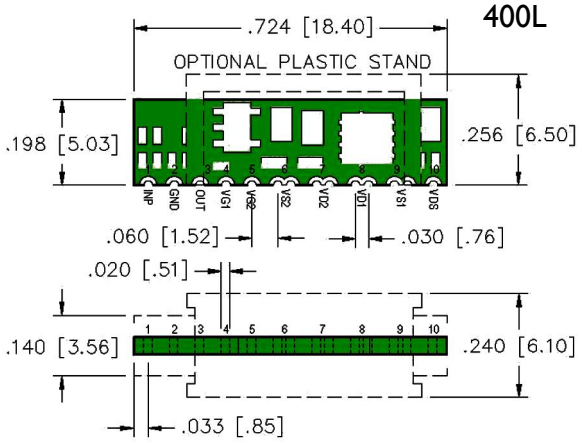
400X
400T

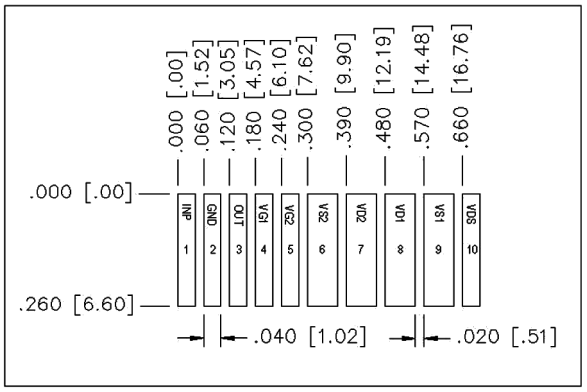




TOLERANCE IS +/−.005" [.13mm]
UNLESS OTHERWISE SPECIFIED

400L

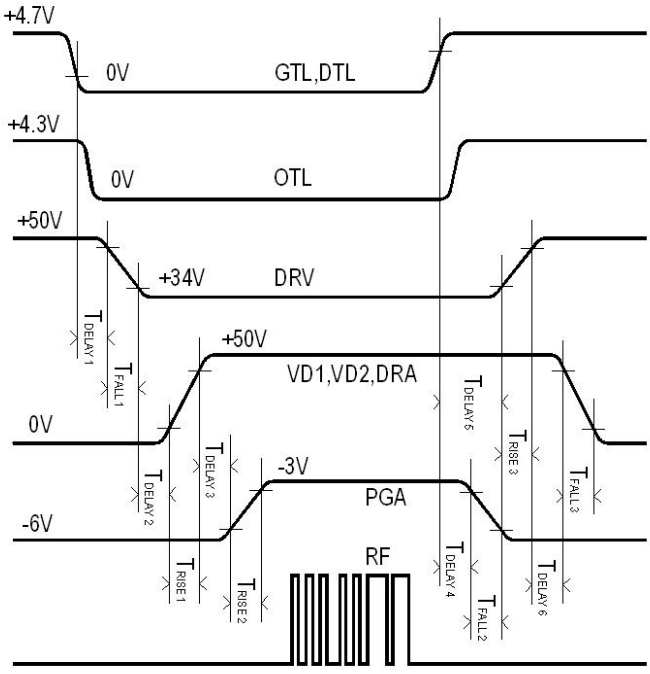




TOLERANCE IS +/−.005" [.13mm]
UNLESS OTHERWISE SPECIFIED

Typical Timing Diagrams

Refer to Application Note XAN-2 for further details.



Switch I/O Pin Descriptions

INP input connects directly to the Controller DRV output for dual-switch configuration. For complementary MOS (push-pull), it connects to OTL.
OUT is a low-side driver output which connects to MOSFET gates VG1 and VG2.
VG1, VG2 are gate inputs that receive signals from DRV output of Controller. For a general purpose switch like the 410, the DRV pin can be tied to VG1 & VG2, while bypassing INP & OUT pins.
VD1, VD2, DRA are drain outputs that connect to the GaN device drain. Switching speeds may be compromised when bypass capacitance exceeds 500pF.
VS1, VS2, SOU are source inputs that take up to +65V supply. Larger storage capacitance are attached here.

Model Number Color Code

0	1	2	3	4	5	6	7	8	9

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