Dying GASP Storage and Release Controller

FEATURES

- Wide input voltage:5~18V
- Up to 2A Release Current From Storage to VIN
- 300mA Charge Current Limit
- Open Drain Dying GASP Flag Indicator
- Programmable Storage and Release Voltage
- SOP8 Package

APPLICATIONS

- Gateway, AP Networks
- DSL/PON/Cable Modems

ENERAL DESCRIPTION

The TMI5111 is a dying gasp storage and release controller IC with internal power MOSFET and Diode. It offers a very compact solution to reduce the storage capacitor and keep the same release time when input is power off. During normal power on, it boost input voltage and charges storage capacitor with a limited current about 300mA. When the charge voltage is reach the selected voltage set by FB1, the charge is stopped and the voltage is maintained until the low input voltage is detected, which is set by FB2. The TMI5111 release charge form storage capacitor to input capacitor with a limited current about 2A. The storage and release voltage can be programmed by user different external divided resistors of FB1 pin and FB2 pin.

The TMI5111 requires a minimal number of readily-available, standard, external components and is available in a SOP8 package.

TYPICAL APPILCATION

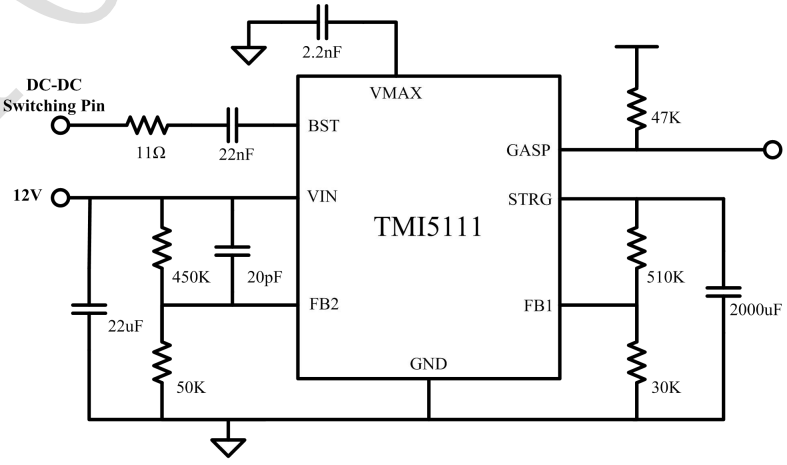


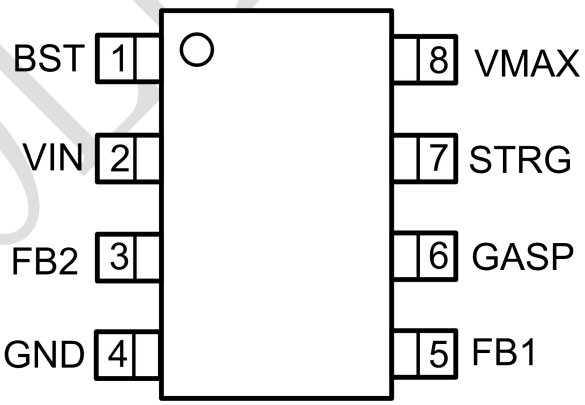
Figure 1. Basic Application Circuit

ABSOLUTE MAXIMUM RATINGS

Parameter	Value	Unit
VIN Voltage Range	-0.3~20	V
BST,VMAX Voltage Range	-0.3~40	V
BST-VIN,VMAX-VIN Voltage Range	-0.3~25	V
STRG Voltage Range	-0.3~32	V
ALL other pins Voltage Range	-0.3~6	V
Junction Temperature	-40~150	°C
Storage Temperature	-65~150	°C
Junction-to-ambient Thermal Resistance	90	°C/W
Junction-to-case Thermal Resistance	46	°C/W
Package Dissipation	1.2	W

Over operating free-air temperature range (unless otherwise noted)

PACKAGE/ORDER INFORMATION



SOP8

Top Mark: T5111 XXXXX (T5111: Device Code, XXXXX: Inside Code)

Part Number	Package	Top mark	Quantity/ Reel
TMI5111	SOP8	T5111XXXXX	3000

PIN FUNCTIONS

Pin	Name	Function
1	BST	Boost pin, connect a RC in series to DC-DC switching pin
2	VIN	Power Input pin
3	FB2	Feedback pin to set release voltage
4	GND	Ground
5	FB1	Feedback pin to set storage voltage
6	GASP	Dying GASP indicate pin
7	STRG	Storage pin, connect a charge capacitor
8	VMAX	Internal high voltage bias pin, connect a ceramic capacitor for decoupling

ESD RATING

Items	Description	Value	Unit
V_{ESD}	Human Body Model for all pins	±2000	V

JEDEC specification JS-001

RECOMMENDED OPERATING CONDITIONS

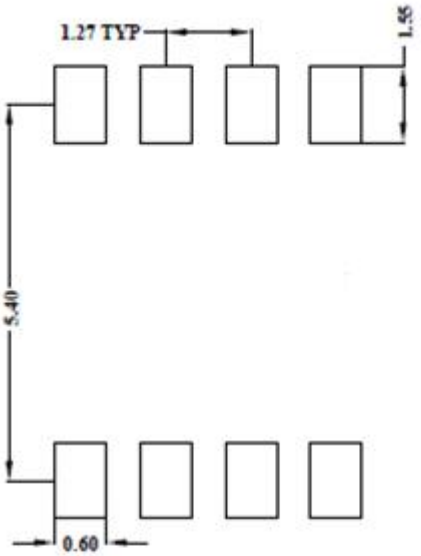
Items	Description	Min	Max	Unit
V_{IN}	Input Voltage Range	5	18	V
TA	Operating Temperature Range	-40	85	°C

ELECTRICAL CHARACTERISTICS

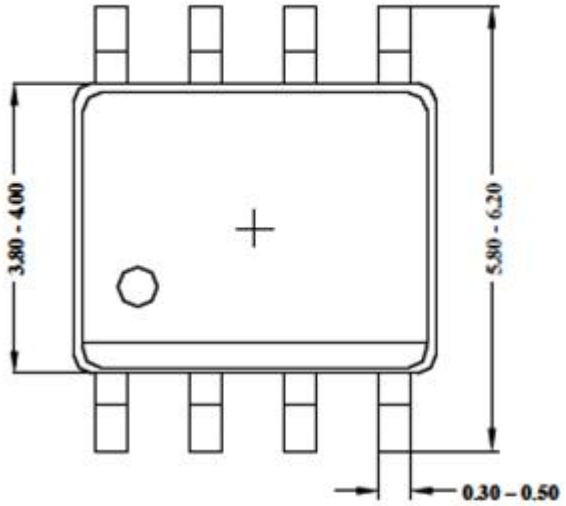
(V_{IN}=12V, T_A = 25°C, unless otherwise noted.)

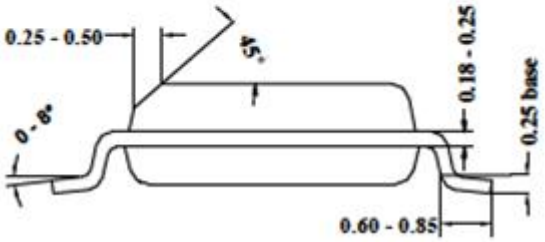
Parameter	Test Conditions	Min	Typ	Max	Unit
Input Voltage Range		5		18	V
Input Current	V_{FB1} =1.1V		140		uA
Under Voltage Lockout	V_{IN} rising		4.9		V
UVLO Hysteresis			850		mV
Feedback Threshold Voltage			1		V
Storage Refresh high Threshold Voltage			1.025		V
Storage Refresh low Threshold Voltage			0.975		V
FB Pin input current		-50		50	nA
GASP high Threshold voltage			1.05		VFB2
GASP low Threshold voltage			1.03		VFB2
GASP delay			1		uS
Storage Charge limit current	V_{IN}=12V		300		mA
Release limit current			2.0		A
Thermal Shutdown Threshold			150		℃
Thermal Shutdown Hysteresis			30		℃

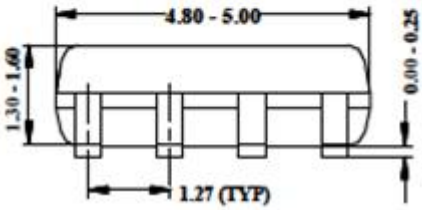
PACKAGE INFORMATION



Recommended Pad Layout







SOP8