

High Efficiency 1MHz, 4A Step Up Regulator

General Description

PJ1644 is a high efficiency boost regulator targeted for general step-up applications.

Ordering Information

PJ1644 □(□□)□
 └─ Temperature Code
 └─ Package Code
 └─ Optional Spec Code

Temperature Range: -40°C to 85°C

Ordering Number	Package type	Note
PJ1644DBC	DFN3×3-10	4A

Features

- Wide input range: 2-6V
- 1MHz switching frequency
- Minimum on time: 100ns typical
- Minimum off time: 100ns typical
- Max output voltage: 6V
- Low $R_{DS(ON)}$: 100mΩ
- RoHS Compliant and Halogen Free
- Compact package: DFN3×3-10

Applications

- Solar Battery Charger
- Backup Battery

Typical Applications

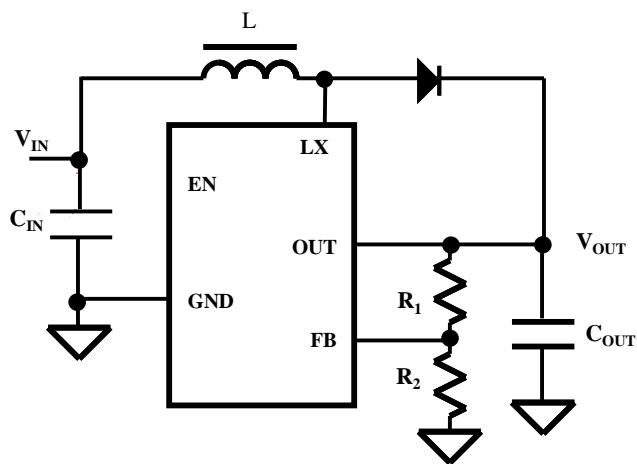
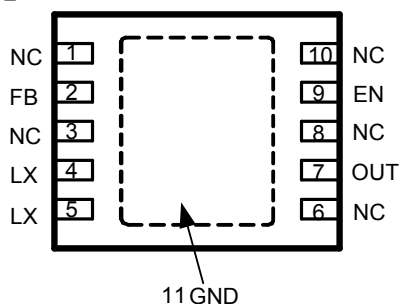


Fig. 1 Typical Schematic Diagram

Pinout (DFN3×3-10 top view)Top Mark: **EL**_{xyz}(Device code: EL for GP6404, *x*=year code, *y*=week code, *z*=lot number code)

Pin Name	Pin Number	Pin Description
NC	1,3,6, 8,10	No connection.
GND	11	Ground pin
LX	4,5	Inductor node. Connect an inductor between IN pin and LX pin. The recommended inductance is 4.7--1uH.
FB	2	Feedback pin. Connect a resistor R1 between V _{OUT} and FB, and a resistor R2 between FB and GND to program the output voltage: $V_{OUT}=0.6V*(R1/R2+1)$
EN	9	Enable control. Pull high to turn on. Do not float.
OUT	7	Output Pin

Absolute Maximum Ratings (Note 1)

All pins	-----7V
Power Dissipation, P _d @ T _A = 25°C DFN3×3-10,	-----1.4W
Package Thermal Resistance (Note 2)	
θ _{JA}	-----70°C/W
θ _{JC}	-----8°C/W
Junction Temperature Range	-----150°C
Lead Temperature (Soldering, 10 sec.)	-----260°C
Storage Temperature Range	----- -65°C to 150°C
ESD Susceptibility (Note 2)	
HBM (Human Body Mode)	-----2kV
MM (Machine Mode)	-----200V

Recommended Operating Conditions (Note 3)

Out pin	-----2V to 6V
All other pins	-----0V to 6V
Junction Temperature Range	----- -40°C to 125°C
Ambient Temperature Range	----- -40°C to 85°C

Electrical Characteristics

($V_{IN} = 2.5V$, $V_{out} = 3.3V$, $I_{out} = 100mA$, $T_A = 25^\circ C$ unless otherwise specified)

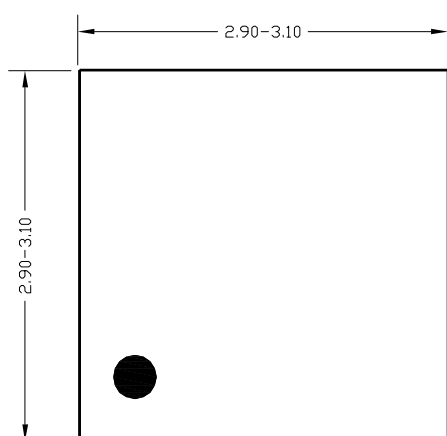
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage Range	V_{IN}		2		6	V
Quiescent Current	I_Q	$V_{FB} = 0.66V$		200		μA
Low Side Main FET R_{ON}	$R_{DS(ON)1}$			100		m
Main FET Current Limit	I_{LIM}		4			A
Switching Frequency	F_{SW}			1		MHz
Feedback Reference Voltage	V_{REF}		0.588	0.6	0.612	V
IN UVLO Rising Threshold	$V_{IN,UVLO}$				1.9	V
Thermal Shutdown Temperature	T_{SD}			150		C

Note 1: Stresses listed as the above “Absolute Maximum Ratings” may cause permanent damage to the device. These are for stress ratings. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may remain possibility to affect device reliability.

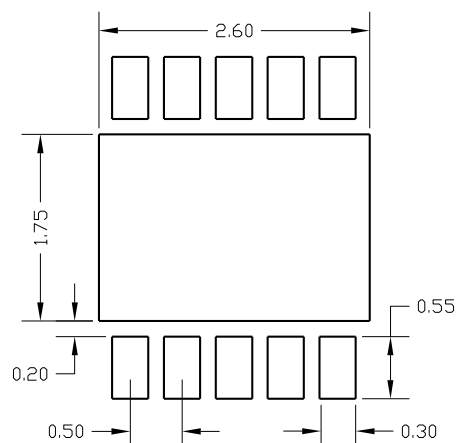
Note 2: θ_{JA} is measured in the natural convection at $T_A = 25^\circ C$ on a low effective single layer thermal conductivity test board of JEDEC 51-3 thermal measurement standard.

Note 3: The device is not guaranteed to function outside its operating conditions

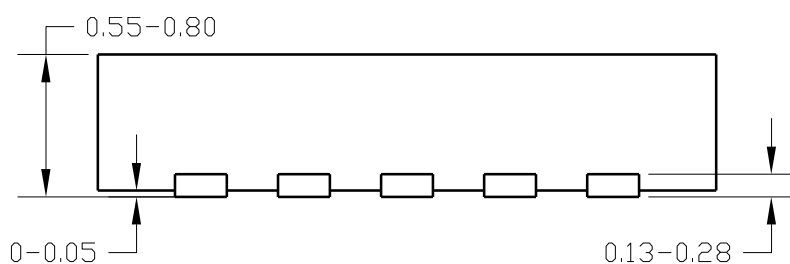
DFN3x3-10 Package outline



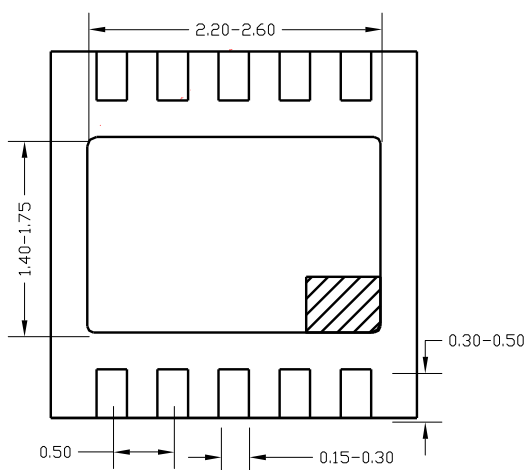
Top View



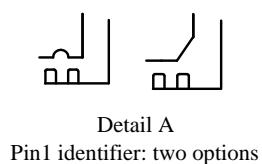
PCB layout (recommended)



Side View



Bottom View



Notes: All dimensions are in millimeters and exclude mold flash & metal burr.