

# MDT763022

## Step-up DC/DC Converter with Voltage Detector

### 1. General Description

MDT763022 is a step-up DC/DC converter with supply voltage detector. It has low start-up voltage and a high output voltage accuracy with low ripple.

The device generates a low level signal whenever the input voltage (supply voltage) falls below threshold voltage level (2.2v).

### 2. Features

High output voltage accuracy : +/- 2.5%

Low start-up voltage: 0.75V (Typ.)

High efficiency: 85% (Typ.)

### 3. Applications

Cellular phones, pagers, mcu

Power failure detection

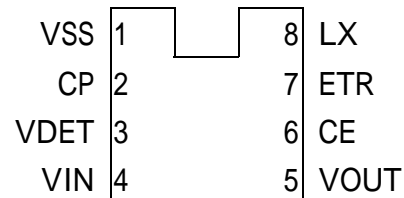
Portable / Battery-Powered Equipment

Palmtops

RF Keyboard / Mouse

### 4. Pin Function Description

MDT763022



Pin Name	I/O	Function
VSS		Ground
CP	I/O	External capacitor for adjusting VDET output delay time
VDET	Open Drain	Supply voltage detector. Output low if $V_{in} < 2.2V$ .
VIN	Input	Supply voltage input
LX	Open Drain	Switching pin
ETR	Output	External switch transistor drive
CE	Input	Chip enable pin, high active
VOUT	Input	Output voltage monitor, IC internal power supply

### ORDERING INFORMATION

Device	Package
MDT763022P	DIP
MDT763022S	SOP

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**5. Electrical Characteristics**

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Output Voltage	-----	2.925	3	3.075	V
Output Ripple	-----		±2.5	±3	%
V <sub>in</sub>	-----			6	V
V <sub>start</sub>	I <sub>out</sub> =1mA		0.75	0.8	V
	I <sub>out</sub> =30mA		1	1.2	V
V <sub>hold</sub>	I <sub>out</sub> =1mA	0.7			V
	I <sub>out</sub> =30mA	0.9			V
I <sub>in</sub>	Without loading		20	25	uA
Supply Current IDD1	V <sub>IN</sub> =V <sub>OUT</sub> × 0.95 Measured at V <sub>OUT</sub> pin without external component		45	52	uA
Supply Current IDD2	V <sub>IN</sub> =V <sub>OUT</sub> +0.5V Measured at V <sub>OUT</sub> pin without external component		8	12	uA
Shutdown Current	V <sub>CE</sub> =0 , V <sub>IN</sub> =V <sub>OUT</sub> ×0.95			0.5	uA
LX Leakage Current	V <sub>IN</sub> =6V			1	uA
Maximum Oscillator Frequency	V <sub>IN</sub> =V <sub>OUT</sub> 0.95 Measured at ETR pin		200	230	kHz
Oscillator Duty Cycle	V <sub>IN</sub> =V <sub>OUT</sub> _0.95 Measured at ETR pin	70	75	80	%
Low Battery Detect Voltage (LBDV)	V <sub>IN</sub> : HI to LOW	2.1	2.2	2.3	V
LBDV hysteresis Width	-----		0.1		V
Efficiency	L , SD , CL etc. connected		85		%

+3.0V Output Type

V<sub>IN</sub>=V<sub>OUT</sub>×0.6 ; I<sub>OUT</sub>=30mA ; T<sub>a</sub>=25 (Unless otherwise specified)

Note:

" Supply current 1 " is the supply current while the oscillator is continuously oscillating. In actual operation the oscillator periodically operates. The current actually provided by an external V<sub>IN</sub> source from V<sub>OUT</sub> pin.

" Supply current 2 " is the supply current while the oscillator stop oscillating. In actual operation the oscillator periodically operates. The current actually provided by an external V<sub>IN</sub> source from V<sub>OUT</sub> pin

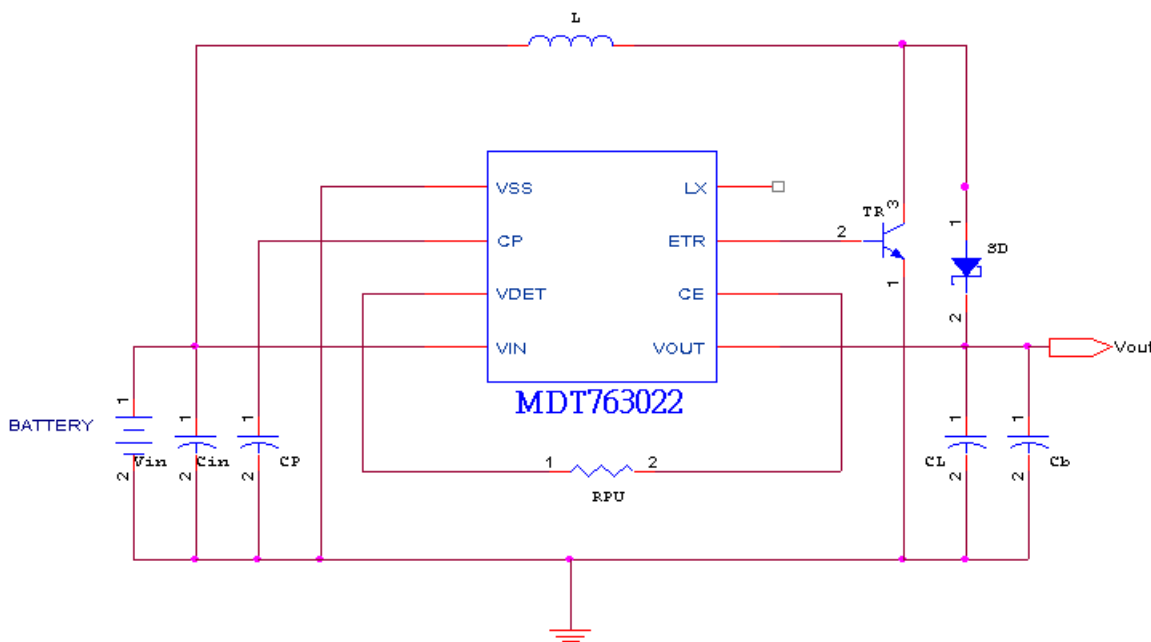
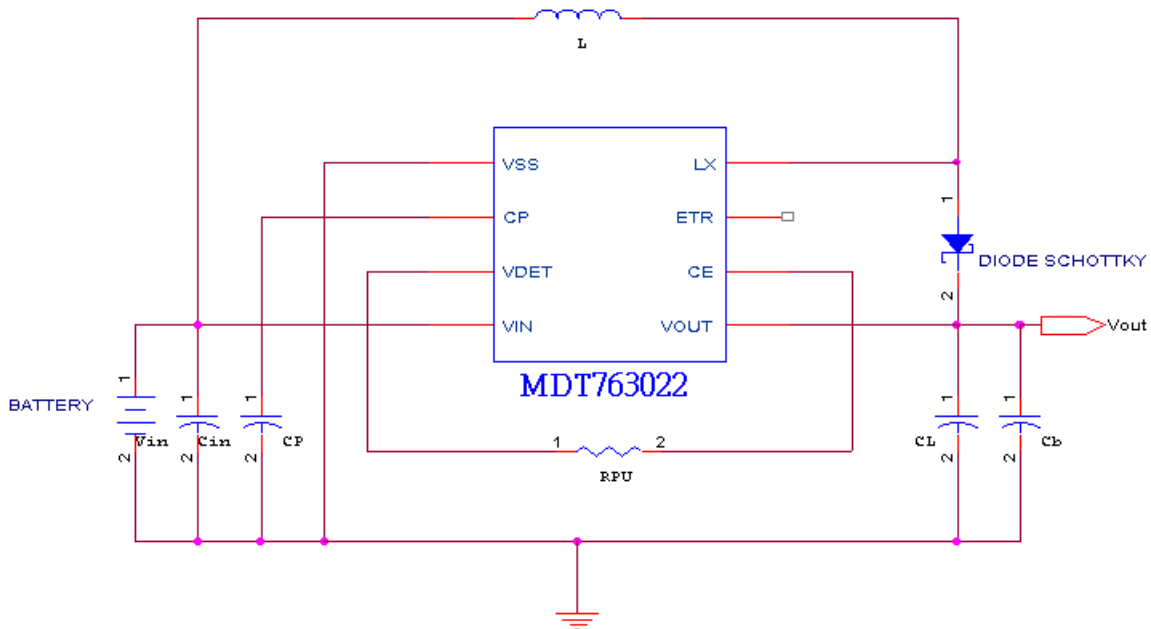
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### 6. Application Circuit

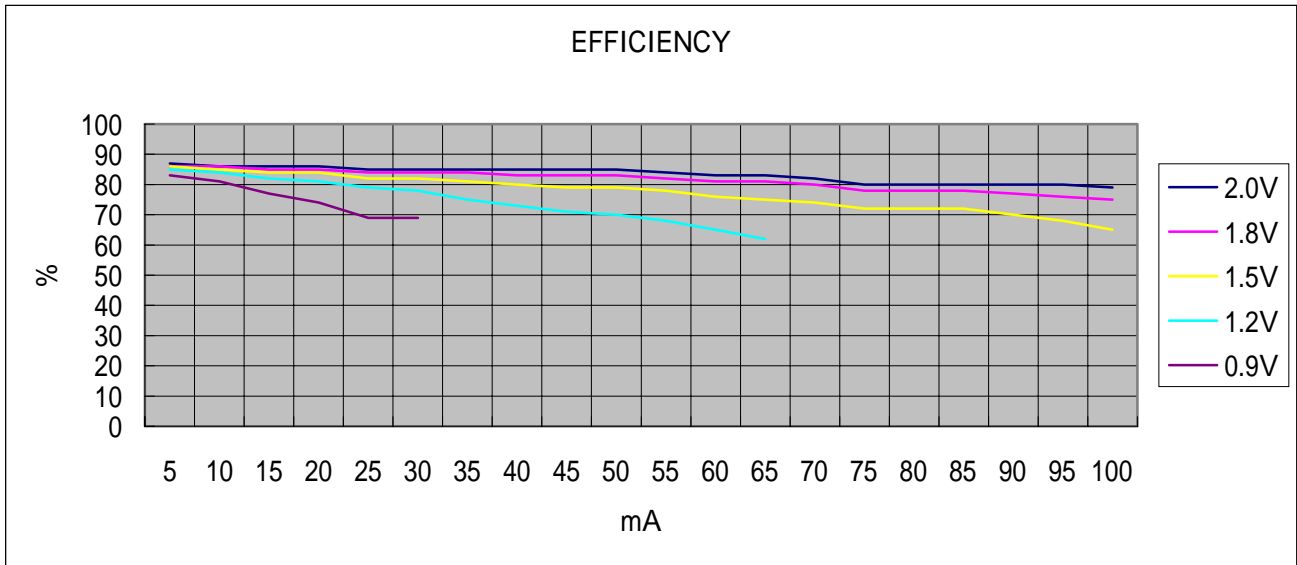
EXTERNAL COMPONENT : CP=22uF ; CIN=100uF ; CL=100uF ; Cb=0.1uF

L=100uH ; RPU=47K



External Transistor application -----using N-Channel Power MOS FET(1A)

### 7. TYPICAL PERFORMANCE OF EFFICIENCY



### 8. OUTPUT VOLTAGE V.S LOADING

