JW1792

Integrated 500V MOS Non-isolated Buck LED Driver

Parameters Subject to Change Without Notice

DESCRIPTION

JW1792 is a non-isolated, constant output current step-down LED driver with 500V MOSFET integrated. Operating in the boundary mode makes it high efficiency and low radiation. Patented algorithms ensure good current accuracy and excellent line/load regulations with lowest BOM cost.

JW1792 is supplied from the MOSFET drain directly, so the auxiliary winding is eliminated, which can light up the LED within 100mS.

With unique sampling techniques, JW1792 has multi-protection functions which can largely enhance the safety and reliability of the system, including VDD UVLO, inductor short protection, LED short protection and over-temperature protection.

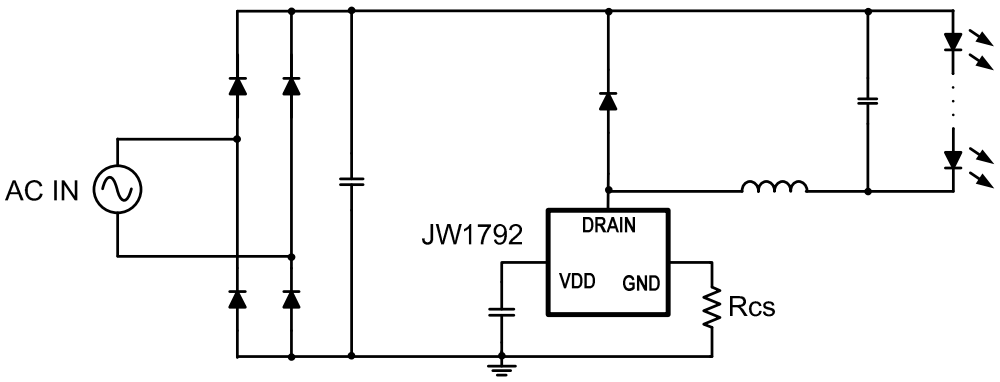
FEATURES

- Integrate 500V, Low R_{dson} MOSFET
- Excellent line/load regulation
- Boundary mode operation
- High efficiency
- LED SCP
- VDD UVLO
- Over-temperature protection
- Inductor short protection
- TO-92,SOP8 and SOT23-3 package

APPLICATIONS

- LED Lighting

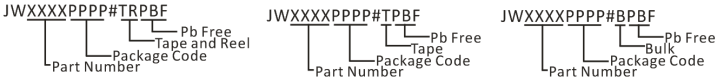
TYPICAL APPLICATION



ORDER INFORMATION

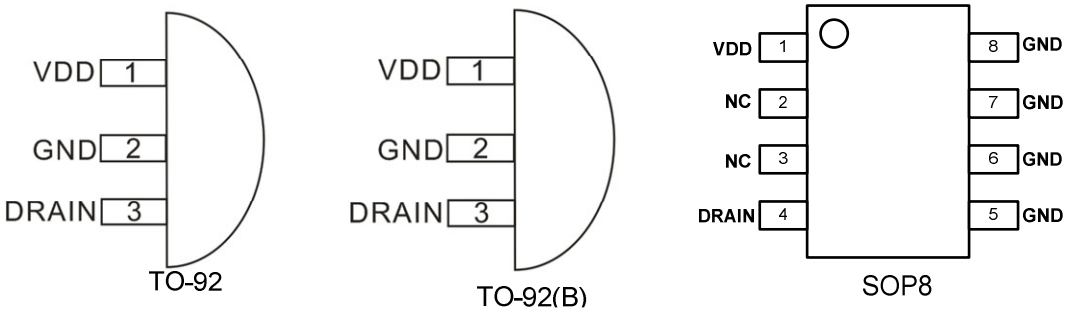
LEAD FREE FINISH	TAPE AND REEL	BULK	PACKAGE	TOP MARKING
	JW1792TOC#TPBF		TO-92	JW1792
		JW1792TOC#BPBF	TO-92(B)	JW1792
JW1792SOPB#PBF	JW1792SOPB#TRPBF		SOP8	JW1792
JW1792SOTF#PBF	JW1792SOTF#TRPBF		SOT23-3	JWBW

Note：



PIN CONFIGURATION

TOP VIEW



ABSOLUTE MAXIMUM RATING[1)]

DRAIN Voltage.....550V
VDD Voltage..... 12V
GND Voltage.....-0.3V to 12V
Junction Temperature[2)3)].....150ºC
Storage Temperature.....-65ºC to +150ºC

RECOMMENDED OPERATING CONDITIONS

DRAIN Voltage 500V
Operating Junction Temp. .....-40ºC to 125ºC

THERMAL PERFORMANCE[4)]

	θ_{JA}	θ_{JC}
TO-92	120	60ºC/W
SOP8	96	45ºC/W
SOT23-3	313.1	144ºC/W

Note：

1) Exceeding these ratings may damage the device.

2) The JW1792 guarantees robust performance from -40°C to 150°C junction temperature. The junction temperature range specification is assured by design, characterization and correlation with statistical process controls.

3) The JW1792 includes thermal protection that is intended to protect the device in overload conditions. Thermal protection is active when junction temperature exceeds the maximum operating junction temperature. Continuous operation over the specified absolute maximum operating junction temperature may damage the device.

4) Measured on JESD51-7, 4-layer PCB.

ELECTRICAL CHARACTERISTICS

T_A=25 ℃, unless otherwise stated

Item	Symbol	Condition	Min.	Typ.	Max.	Units
V_{DD} Regulation Voltage	V_{DD}		7	7.4	7.8	V
V_{DD} Start Up threshold	V_{DD_ST}	V_{DD} rising	6.7	7.1	7.5	V
V_{DD} Under Voltage Lockout	V_{DD_UVLO}	V_{DD} falling	5.9	6.1	6.3	V
V_{DD} IQ	I_Q	V_{DD}=7.4V	130	150	170	μA
Reference Voltage	V_{REF}		580	600	620	mV
MOS Max ON Time	T_{ONMAX}		48	60	72	μs
MOS Min ON Time	T_{ONMIN}		0.3	0.4	0.5	μs
MOS Max OFF Time	T_{OFFMAX}		330	440	550	μs
MOS Min OFF Time	T_{OFFMIN}		1	1.3	1.6	μs
MOS Max Current	I_{MAX}		0.6	0.7		A
MOS BV Voltage	V_{BRDSS}		500	550		V
MOS R_{dson}	R_{dson}	I(DRAIN)=50mA		12		Ω
Min Output Voltage	V_{OMIN}			3		V
Thermal Protection Threshold	OTP_{CHIP}		140	145	150	℃