

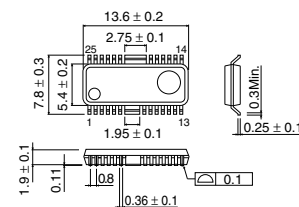
Head coil driver for MD recording

BD7915FP

●Description

BD7915FP is a head coil driver for MD(Mini Disc) that integrates recording head coil peripheral circuit into one chip. In standard head coils this circuit is composed of discrete components. High voltage D-MOS FET, and charge-pump circuit are incorporated to deliver a higher efficient application than conventional products.

●Dimension (Units : mm)



HSOP25

●Features

- 1) Built-in D-MOS FET and pre-driver enable components reduction.
- 2) Incorporated regulator for power supply in head drive H bridge.
- 3) Regulator output voltage can be changed by external resistor.
- 4) Built-in regulator input voltage descent mute
- 5) Built-in thermal shut down circuit
- 6) Built-in charge-pump circuit for VG step-up

●Applications

MD recorder, Mini component stereo, MD radio cassette

● Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Output D-MOS Drain · Source Voltage (GND connection side)	V _{DSH}	80	V
Output N-MOS Drain · Source Voltage (V _M connection side)	V _{DSL}	7	V
Supply Voltage for Driving Power MOS Gate	V _G	15	V
EFM Input, EFM High-level Voltage	EFMIN, V _{DD}	7	V
Mute (Terminal voltage)	V _{MUTE}	7	V
Charge-pump Supply Voltage	V _{CP}	7	V
Input Voltage	V _{REGIN}	7	V
Output Current	I _{REGOUT}	400	mA
Power Dissipation	P _d	1.45 *	W
Operating Temperature Range	T _{opr}	-25 ~ +75	°C
Storage Temperature Range	T _{stg}	-55 ~ +150	°C

*Derating : 11.6mW/°C for operation above Ta=25°C

*PCB (70mmx70mm, t=1.6mm) glass epoxy mounting.

● Recommended Operating Conditions (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage for power MOS gate drive	V _G	4.0	—	13	V
Supply voltage in H bridge block	V _M	0	—	V _G	V
Supply voltage in charge-pump block	V _{CP}	2.7	—	6.5	V
Regulator input voltage	V _{REGIN}	2.7	—	7.0	V

● Electrical characteristics (Unless otherwise noted; Ta=25°C, V_{DD}=3.3V, V_G=8.0V, V_{REGIN}=5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
<Magnetic head driver block>						
V _G circuit current	I _G	—	50	400	μA	EFM (No input)
V _{DD} circuit current	I _{VDD}	—	—	20	μA	EFM (No input)
D-MOS breaking current	I _{LEAK}	—	—	50	μA	8-10 or 12-10PIN 80V applied
NMOS ON resistor (Source side)	R _{ON1}	—	0.6	1.2	Ω	I _{DS} =0.3A, V _{GS} =8.0V
DMOS ON resistor (Sink side)	R _{ON2}	—	0.8	1.6	Ω	I _{DS} =0.3A, V _{GS} =8.0V
Turn ON delay time	t _{d(on)}	—	70	150	nsec	
Turn OFF delay time	t _{d(off)}	—	70	150	nsec	
MUTE pin H level sink current	I _{MTH}	25	43	85	μA	MUTE=5V
MUTE pin L level sink current	I _{MTL}	-20	0	20	μA	MUTE=0V
<Charge-pump block>						
V _{CP} circuit current	I _{CP}	—	0.6	3.0	mA	EFM (No input), V _{CP} =5V
Charge-pump output	V _{GST}	8.8	9.95	12	V	EFM (No input), V _{CP} =5V
Oscillating circuit frequency	f _{OSC}	130	320	450	kHz	6pin waveform monitor, V _{CP} =5V
<Regulator block>						
Circuit current 1	I _{Q1}	—	1.1	5.0	mA	Reg SEL ≥ 2V
Circuit current 2	I _{Q2}	—	0.8	5.0	mA	Reg SEL ≤ 0.5V
Reg SEL pin H level sink current	I _{SLH}	10	29	60	μA	Reg SEL = 5V
Reg SEL pin L level sink current	I _{SLL}	-20	0	20	μA	Reg SEL = 0V
<Regulator block, pin18, emitter follower output>						
Output voltage	V _{REGOUT}	2.23	2.50	2.77	V	I _O =300mA (X2 amplifier)
Output voltage range	V _{REGW}	1.5	—	3.8	V	I _O =300mA
<Regulator block, pin17, external PNP driving output>						
Maximum driving current	I _{REG}	5	—	—	mA	Sink current

● Application Circuit

