

**HIGH VOLTAGE IGNITION COIL DRIVER
POWER IC**

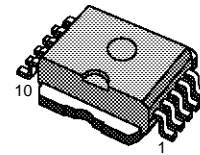
ADVANCE DATA

- NO EXTERNAL COMPONENT REQUIRED
- INTEGRATED HIGH VOLTAGE CLAMP
- COIL CURRENT LIMIT INTERNALLY SET
- HIGH RUGGEDNESS

DESCRIPTION

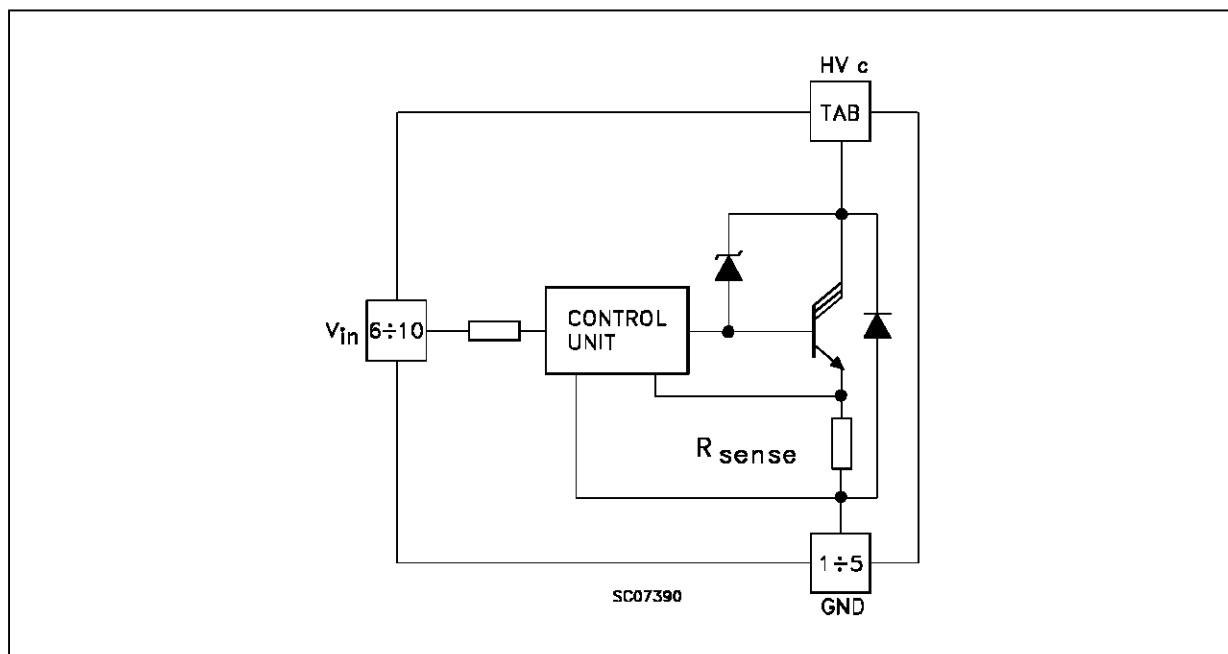
The VB921ZVSP is a monolithic high voltage integrated circuits made using SGS-THOMSON Microelectronics Vertical Intelligent Power Technology, which combines a vertical current flow power trilinton with a coil current limiting circuit and a collector voltage clamping.

The device is peculiarly suitable for application in high performance electronic car ignition, where coil current limitation and voltage clamping are required.



Power SO-10™

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Unit
HV_c	Collector Voltage	Internally Limited	V
V_{in}	Maximum Input Voltage	8	V
I_c	Collector Current	Internally Limited	A
I_{in}	Input Current	20	mA
P_{tot}	Total Dissipation at $T_c = 25\text{ }^\circ\text{C}$	100	W
T_{stg}	Storage Temperature	-40 to 150	$^\circ\text{C}$
T_j	Operating Junction Temperature	-40 to 150	$^\circ\text{C}$

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{thj-case}$	Thermal Resistance Junction-case	Max 1.25	$^\circ\text{C}/\text{W}$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max 62.5	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($V_{batt} = 12\text{ V}$, $T_{case} = 25\text{ }^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{cgo}	Collector Cut-off Current	$V_{in} = 0$ $HV_c = 250\text{ V}$			250	μA
V_{cl}^*	Clamping Voltage	$-40 < T_j < 125\text{ }^\circ\text{C}$	300		400	V
$V_{cg(sat)}$	Power Stage Saturation Voltage	$I_c = 6\text{ A}$ $I_{in} = 10\text{ mA}$			2.5	V
I_{cl}^*	Coil Current Limit	$V_{in} = 5\text{ V}$ $-40 \leq T_j \leq 125\text{ }^\circ\text{C}$ see note 1	6.5	7	7.5	A
I_{in}	Input Current		8			mA
V_f^{**}	Diode Forward Voltage	$I_f = 10\text{ A}$			2.5	V
V_{in}	Input Voltage		4.5		5.5	V
ΔI_{cl}	Coil Current Variation in Respect to $V_{in} = 5\text{ V}$	$V_{in} = 4.5 - 5.5\text{ V}$			200	mA

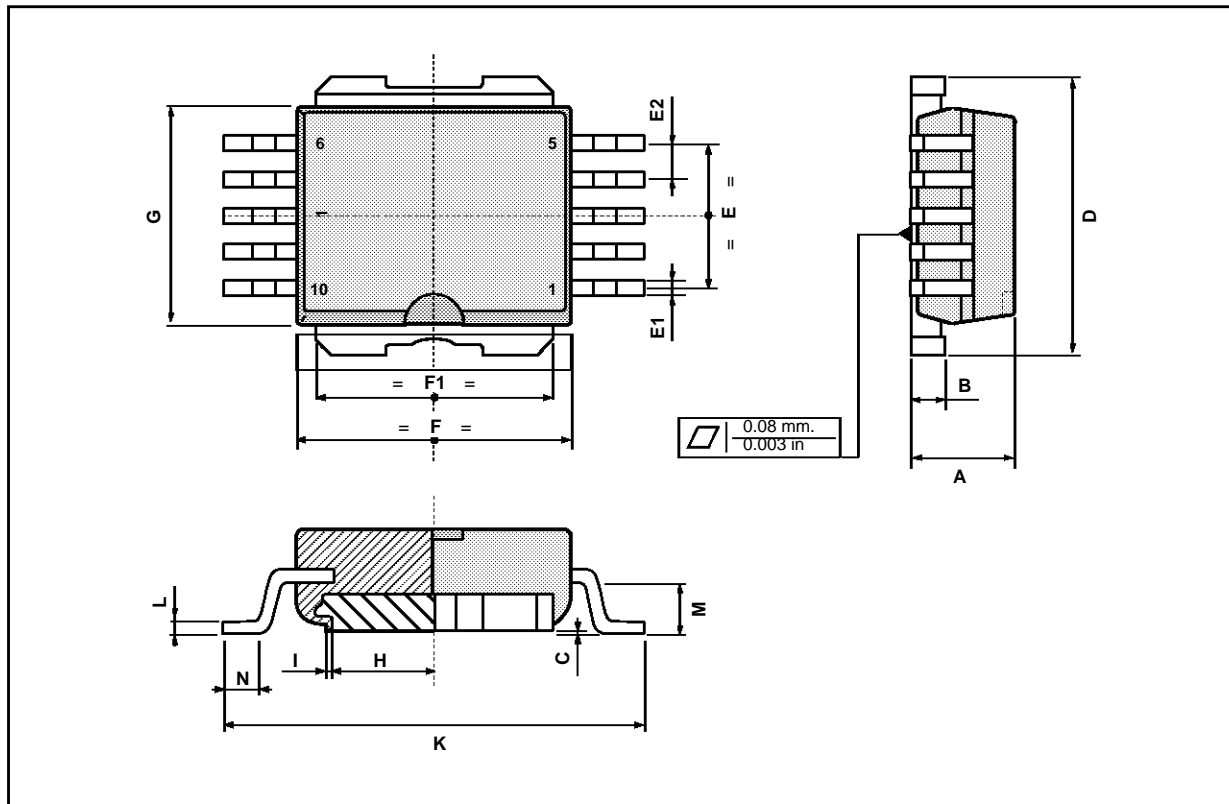
* Coil data: primary resistance $R_c = 0.4 - 0.8\ \Omega$, primary inductance $L_c = 6 - 8\text{ mH}$

** Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

NOTE 1: I_{cl} is also controlled in respect to the variation of V_{in} between 0.5 to 5.5 V

Power SO-10 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	3.45	3.5	3.55	0.135	0.137	0.140
B		1.28	1.30		0.050	0.051
C			0.15			0.006
D	9.40	9.50	9.60	0.370	0.374	0.378
E	4.98	5.08	5.48	0.196	0.200	0.216
E1	0.40	0.45	0.60	0.016	0.018	0.024
E2	1.17	1.27	1.37	0.046	0.050	0.054
F	9.30	9.40	9.50	0.366	0.370	0.374
F1	7.95	8.00	8.15	0.313	0.315	0.321
G	7.40	7.50	7.60	0.291	0.295	0.299
H	6.80	6.90	7.00	0.267	0.417	0.421
I		0.10			0.004	
K	13.80	14.10	14.40	0.543	0.555	0.567
L		0.40	0.50		0.016	0.020
M	1.60	1.67	1.80	0.063	0.066	0.071
N	0.60	0.08	1.00	0.024	0.031	0.039



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