

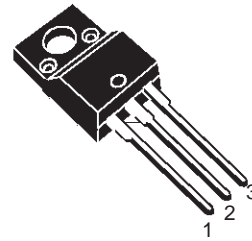
**HIGH VOLTAGE IGNITION COIL DRIVER
POWER IC**

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

DESCRIPTION

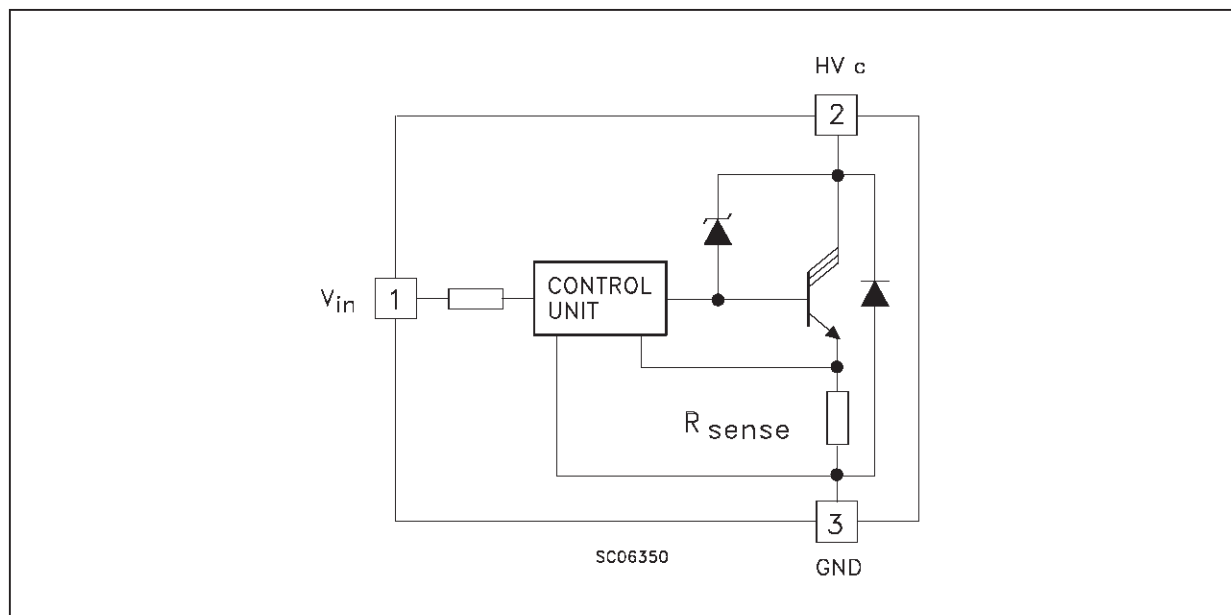
The VB921ZVFI is a monolithic high voltage integrated circuits made using SGS-THOMSON Microelectronics Vertical Intelligent Power Technology, which combines a vertical current flow power trilinton with a coil current limiting circuit and a collector voltage clamping.

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



ISOWATT220

BLOCK 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	10	mA
P _{tot}	Total Dissipation at T _c = 25 °C	40	W
T _{stg}	Storage Temperature	-40 to 150	°C
T _j	Operating Junction Temperature	-40 to 150	°C

THERMAL DATA

Symbol	Parameter	Value	Unit
R _{thj-case}	Thermal Resistance Junction-case	Max 3.12	°C/W
R _{thj-amb}	Thermal Resistance Junction-ambient	Max 62.5	°C/W

ELECTRICAL CHARACTERISTICS (V_{batt} = 12 V, T_{case} = 25 °C unless otherwise specified)

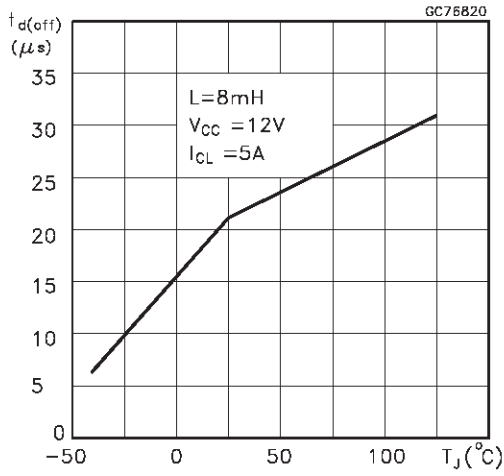
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{cgo}	Collector Cut-off Current	V _{in} = 0 HV _c = 250 V			250	μA
V _{cl} *	Clamping Voltage	-40 < T _j < 125 °C	340		440	V
V _{cg(sat)}	Power Stage Saturation Voltage	I _c = 5 A I _{in} = 10 mA			2.5	V
I _{cl} *	Coil Current Limit	V _{in} = 4.2 V -40 ≤ T _j ≤ 125 °C V _{in} = 5 V -40 ≤ T _j ≤ 125 °C see note 1	6 6.5		7.5	A A
I _{in}	Input Current	V _{in} = 4.2 V I _c = 5 A V _{in} = 5 V I _c = 5 A			5 10	mA mA
V _f **	Diode Forward Voltage	I _f = 10 A			3.5	V
V _{in}	Input Voltage		4.2		5.5	V
ΔI _{cl}	Coil Current Variation in Respect to V _{in} = 5 V	V _{in} = 4.5 - 5.5 V			200	mA

* Coil data: primary resistance R_c = 0.4 - 0.8 Ω, primary inductance L_c = 6 - 8 mH

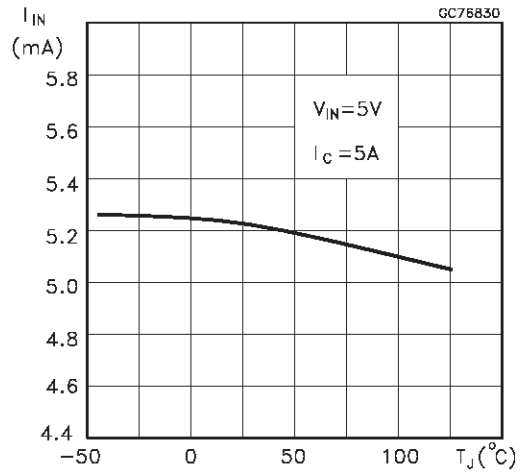
** Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

NOTE 1: I_{cl} is also controlled in respect to the variation of V_{in} between 4.5 to 5.5 V

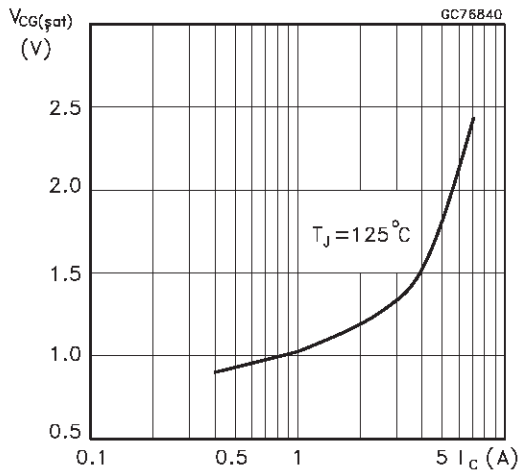
Delay-off Time vs Temperature



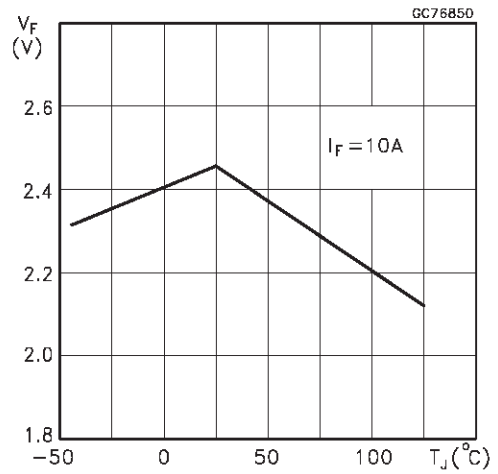
Input Current vs Temperature



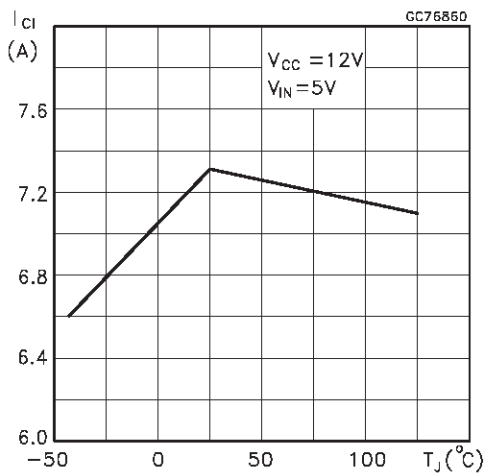
Saturation Voltage vs Collector Current



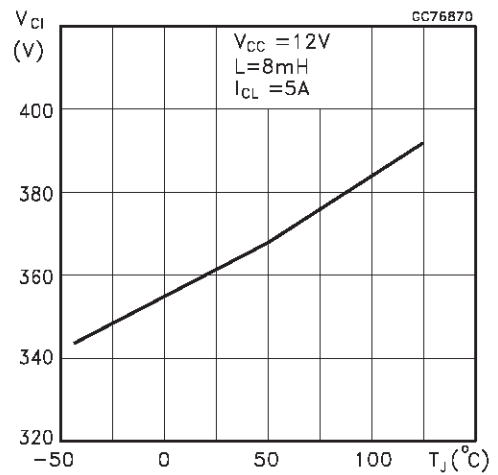
Diode Forward Voltage vs Temperature



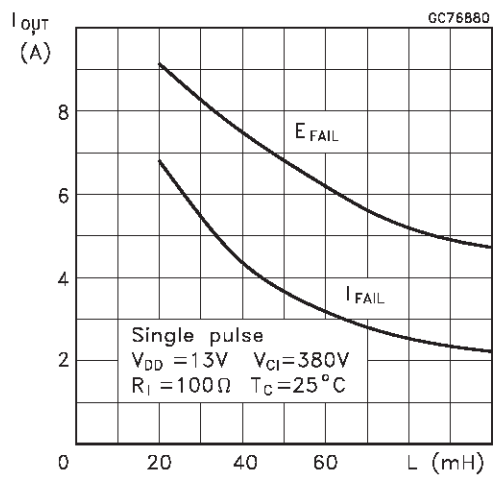
Coil Current Limit vs Temperature



Clamping Voltage vs Temperature

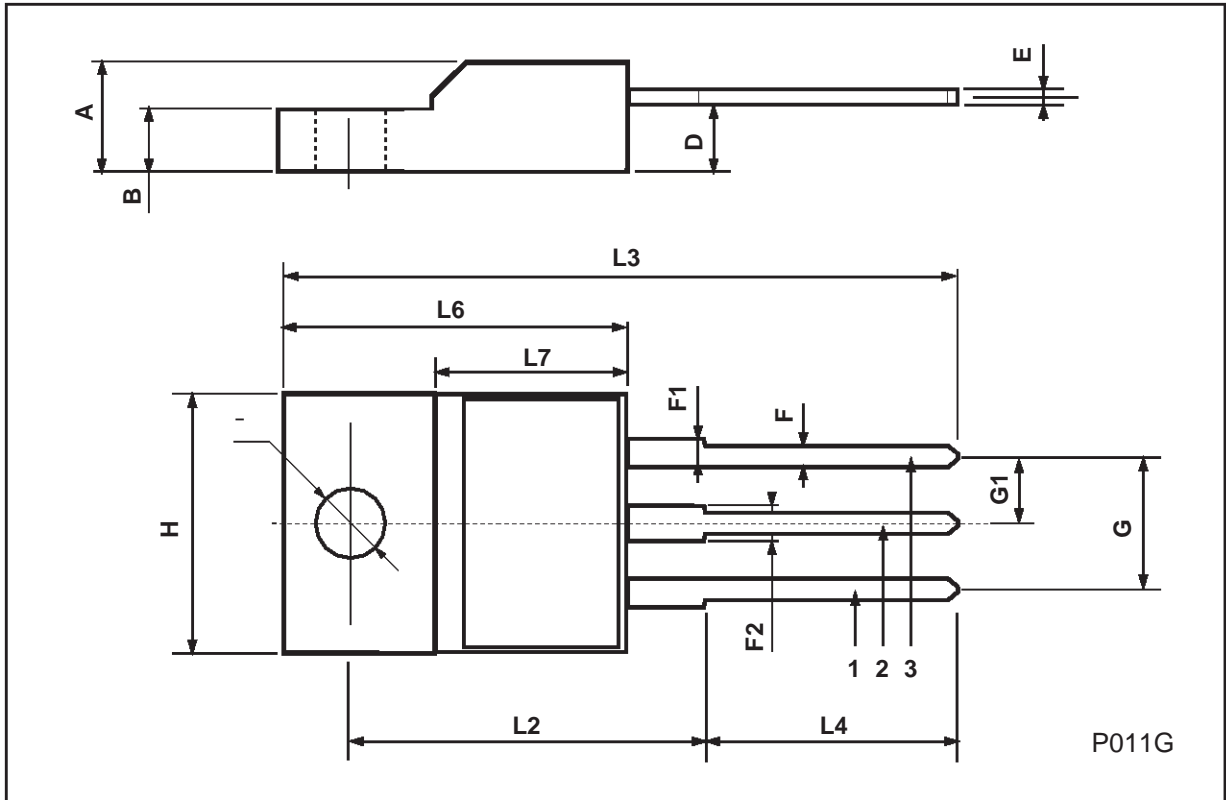


Maximum Energy and Output Current Unclamped



ISOWATT220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.4		4.6	0.173		0.181
B	2.5		2.7	0.098		0.106
D	2.5		2.75	0.098		0.108
E	0.4		0.7	0.015		0.027
F	0.75		1	0.030		0.039
F1	1.15		1.7	0.045		0.067
F2	1.15		1.7	0.045		0.067
G	4.95		5.2	0.195		0.204
G1	2.4		2.7	0.094		0.106
H	10		10.4	0.393		0.409
L2		16			0.630	
L3	28.6		30.6	1.126		1.204
L4	9.8		10.6	0.385		0.417
L6	15.9		16.4	0.626		0.645
L7	9		9.3	0.354		0.366
Ø	3		3.2	0.118		0.126



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