



VB923

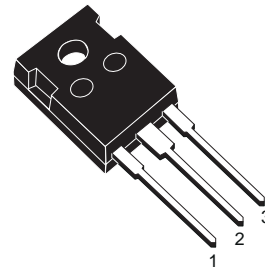
HIGH VOLTAGE IGNITION COIL DRIVER POWER IC

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

DESCRIPTION

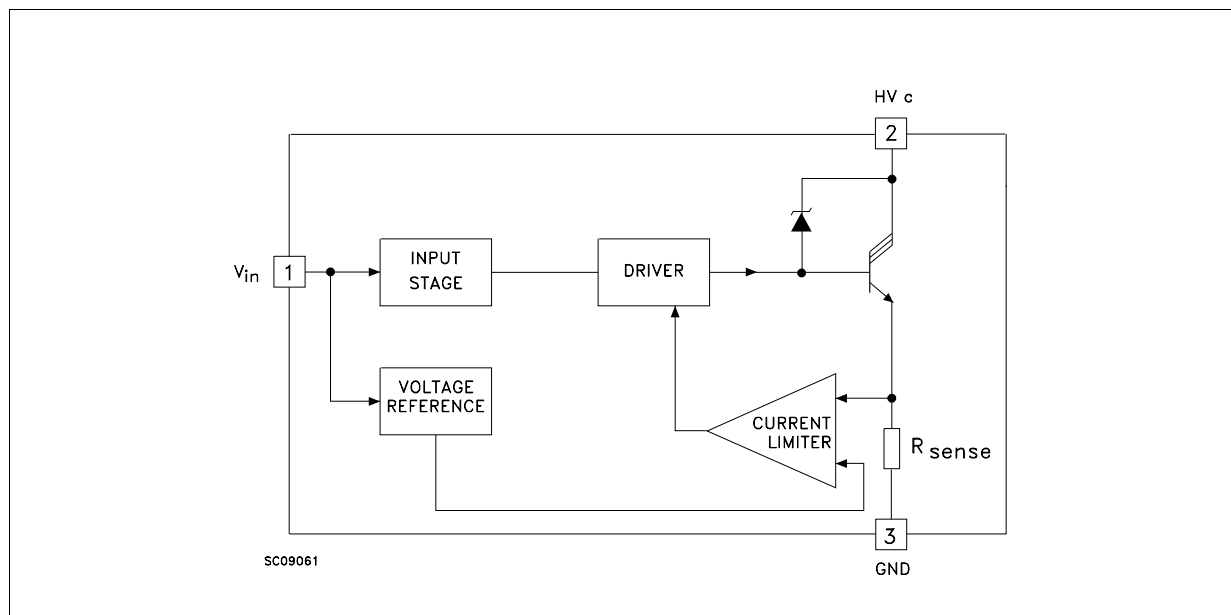
The VB923 is a monolithic high voltage integrated circuits made using STMicroelectronics VIPower Technology, which combines a vertical current flow power trilinton with a coil current limiting circuit and a collector voltage clamping.

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



TO-247

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Unit
HV _c	Collector Voltage	Internally Limited	V
I _c	Collector Current	Internally Limited	A
I _{in}	Input Current	40	mA
P _{tot}	Total Dissipation at T _c = 25 °C	150	W
T _{stg}	Storage Temperature	-40 to 150	°C
T _j	Operating Junction Temperature	-40 to 150	°C
E _{s/b}	Avalanche Energy	350	mJ

THERMAL DATA

Symbol	Parameter	Value	Unit
R _{thj-case}	Thermal Resistance Junction-case	Max 0.83	°C/W
R _{thj-amb}	Thermal Resistance Junction-ambient	Max 30	°C/W

ELECTRICAL CHARACTERISTICS (V_{batt} = 14 V, HEI Coil = xx, 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 = 200 V			250	μA
V _{cl}	Clamping Voltage	-40 < T _j < 125 °C I _c = 5 A	350	400	500	V
V _{cg(sat)}	Power Stage Saturation Voltage	I _c = 5 A V _{in} = 4 V		2	2.5	V
I _{cl} *	Coil Current Limit	-30 ≤ T _j ≤ 50 °C	6.0	6.6	7.2	A
V _f **	Diode Forward Voltage	I _f = 10 A			3.5	V
V _{inCL}	Input Voltage During On State	-30 ≤ T _j ≤ 120 °C I _c = 5 A I _{in} = 10 mA see note 1			4	V
V _{inTH}	Threshold Input Voltage	-30 ≤ T _j ≤ 120 °C I _c = 5 A see note 2	0.5		4	V
t _{d(off)}	Switching Time	I _c = 3 A L = 6 mH (see fig.1)	15		40	μs

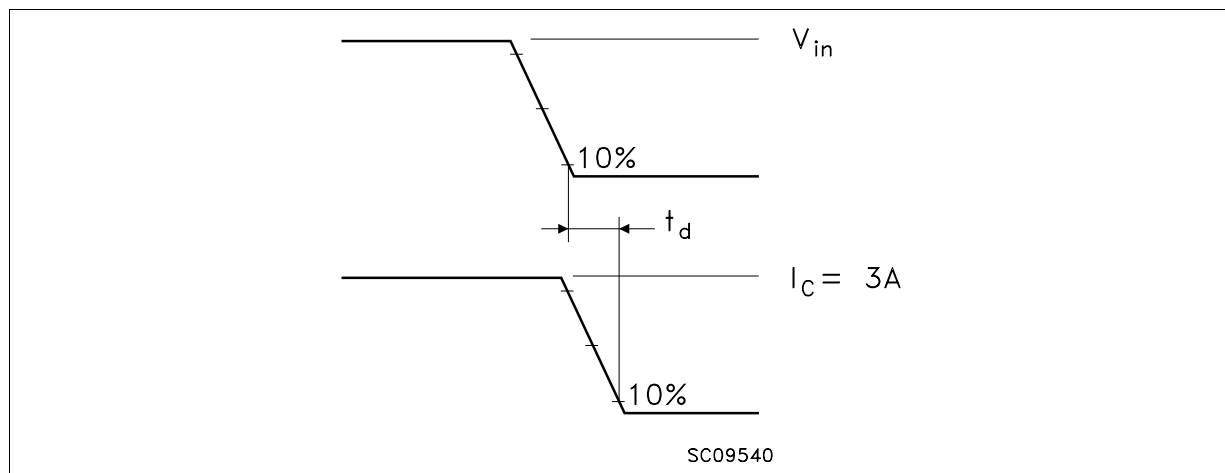
* I_{cl} is measured 1ms after the maximum peak

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

Note 1: After adjusting input signal (frequency and duty) to be I_c = 5A, V_{in} (Tr ON) should be measured.

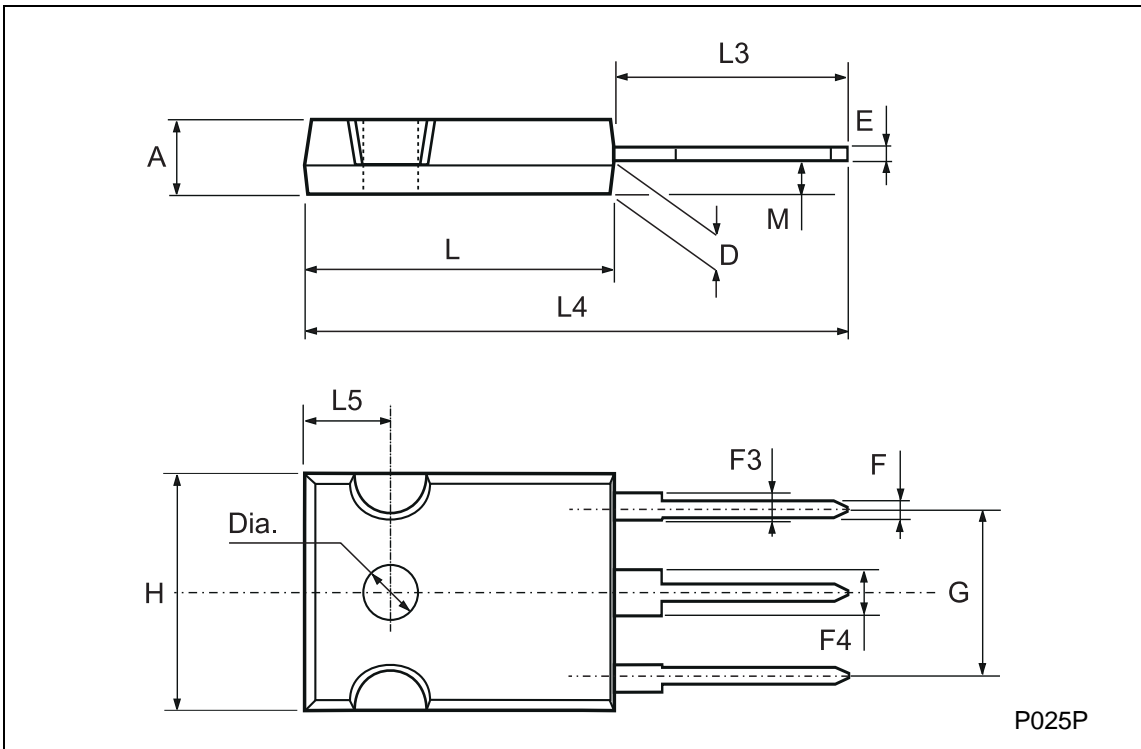
Note 2: The device is biased with 14V on collector with respect to emitter. Then a voltage ramp (0 to 5V) is put on input. V_{inTH} is the input voltage when the device is in on-state with I_c=5A

Fig. 1 Switching Time



TO-247 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		5.3	0.185		0.209
D	2.2		2.6	0.087		0.102
E	0.4		0.8	0.016		0.031
F	1		1.4	0.039		0.055
F3	2		2.4	0.079		0.094
F4	3		3.4	0.118		0.134
G		10.9			0.429	
H	15.3		15.9	0.602		0.626
L	19.7		20.3	0.776		0.779
L3	14.2		14.8	0.559	0.413	0.582
L4		34.6			1.362	
L5		5.5			0.217	
M	2		3	0.079		0.118
Dia	3.55		3.65	0.140		0.144



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