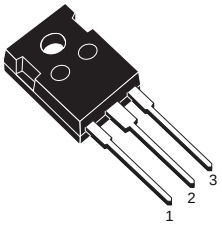
VB927T

HIGH VOLTAGE IGNITION COIL DRIVER POWER I.C.

TYPE	V_{cl}	I_{cl}	$V_{cg(sat)}$
VB927T	380V	9.5A	2.5V

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



TO-247

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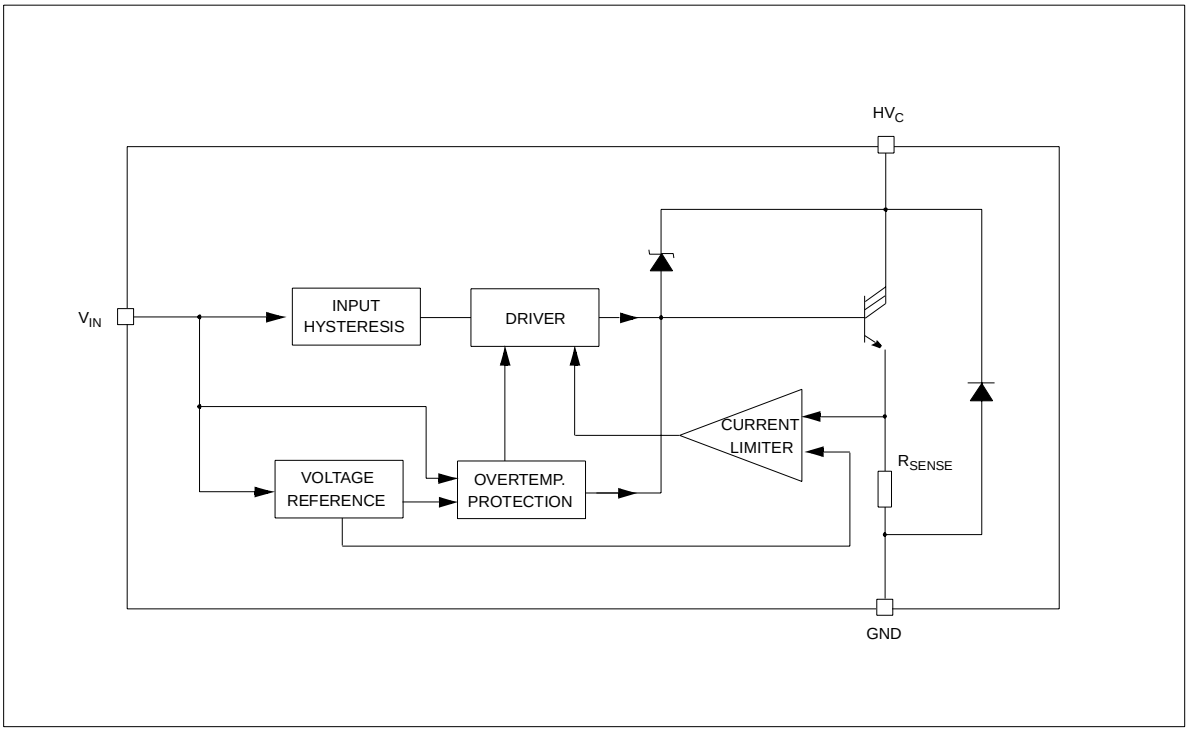
PACKAGE	**TUBE**	**T&R**
TO-247	VB927T	-

DESCRIPTION

The VB927T is a monolithic high voltage integrated circuit made by using the STMicroelectronics VIPower™ technology, which combines vertical current flow power trilinton with a coil current and a collector voltage clamping. The device is particularly suitable for application in high performance electronic car ignition, where coil current limitation and voltage clamping are required.

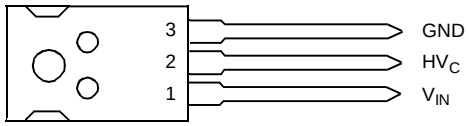
BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Unit
HV_c	Collector Voltage	Internally limited	V
V_{IN}	Maximum Input Voltage	15	V
I_C	Collector Current	Internally limited	A
I_{IN}	Input Current	Internally limited	mA
P_{tot}	Total Dissipation At T_c=25°c	150	W
T_{stg}	Storage Temperature	-40 to 150	°C
T_j	Junction Operating Temperature	-40 to 150	°C

CONNECTION DIAGRAM



TO-247

THERMAL DATA

Symbol	Parameter		Value	Unit
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	(MAX)	0.6	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	(MAX)	30	°C/W

ELECTRICAL CHARACTERISTICS (V_{CC}=14V; -40V < T_j < 125ºC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I_{leak}	Collector Cut-off Current	V_{IN}=0V; HV_C=250V			250	µA
V_{cl} (*)	Clamping Voltage	-40°C < T_j < 125°C	380	420	490	V
$V_{cg(sat)}$	Power Stage Saturation Voltage	I_C=5A; I_{IN}=10mA; 25°C ≤ T_j ≤ 125°C			2.5	V
		I_C=6A; I_{IN}=10mA; -40°C ≤ T_j ≤ 25°C			3	V
I_{cl} (*)	Coil Current Limit	V_{IN}=5V; -40°C ≤ T_j ≤ 125°C	8.5		9.5	A
I_{IN}	Input Current	V_{IN}=5V; I_C=5A			10	mA
		V_{IN}=5V; I_C=5A; T_j=25°C	3		10	mA
V_f (**)	Diode Forward Voltage	I_f=10A; T_j=25°C	1.2	2.2	3.2	V
V_{INH}	Input Voltage (ON)	On state input threshold	3.2		3.6	V
V_{INL}	Input Voltage (OFF)	Off state input threshold	3		3.4	V
$V_{IN(hyst)}$	Input Voltage (Hyst.)		0.2		0.6	V
$t_{d(off)}$	Turn-off Time	I_C=5A		30		µs
T_j	Junction Temperature Limit	See note 1	150			°C

(*) Coil data: primary resistance R_C=0.4 - 0.8Ω; primary inductance L_C= 6 - 8 mH

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

Note 1: T_{jmin}=150°C means that the behavior of the device will not be affected for junction temperature lower than 150°C. For higher temperature, the thermal protection circuit will begin its action reducing the I_{cl} limit according with the power dissipation. Chip temperature is a function of the R_{th} of the whole system in which the device will be operating.

TO-247 MECHANICAL DATA

DIM.	mm.		
	MIN.	TYP	MAX.
A	4.85		5.15
A1	2.20		2.60
b	1.0		1.40
b1	2.0		2.40
b2	3.0		3.40
c	0.40		0.80
D	19.85		20.15
E	15.45		15.75
e		5.45	
L	14.20		14.80
L1	3.70		4.30
L2		18.50	
∅P	3.55		3.65
∅R	4.50		5.50
S		5.50	
Package Weight	Gr. 4.43