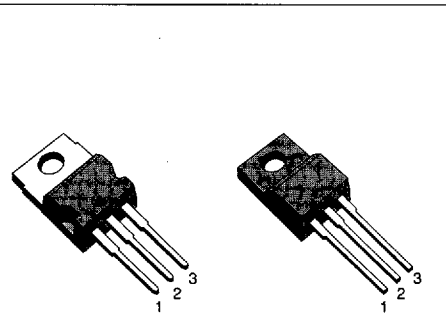
SGS-THOMSON MICROELECTRONICS

VB921Z
VB921ZFI

HIGH VOLTAGE IGNITION COIL DRIVER POWER IC

ADVANCE DATA

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



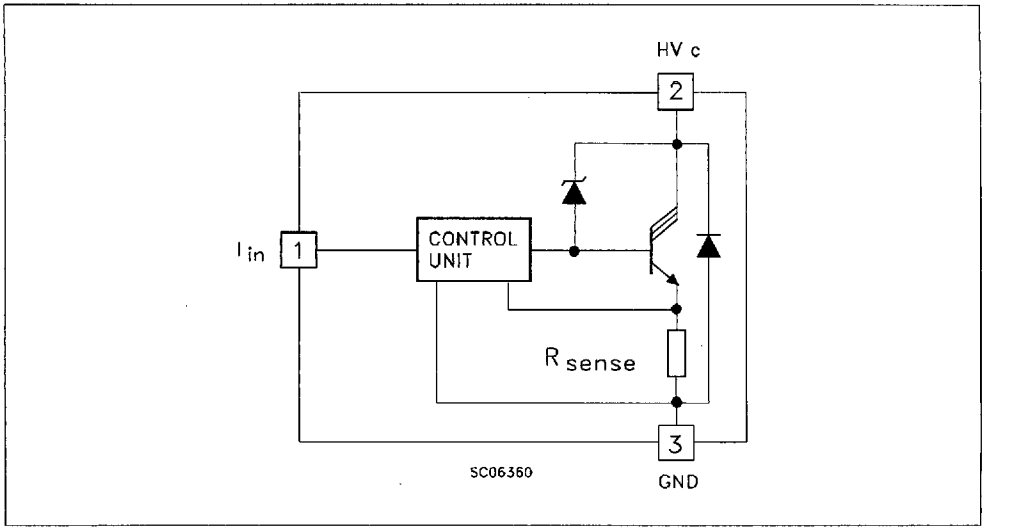
TO-220 **ISOWATT220**

DESCRIPTION

The VB921Z and VB921ZFI are 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.

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value		Unit
		VB921Z	VB921ZFI	
HV_c	Collector Voltage	Internally Limited		V
I_c	Collector Current	Internally Limited		A
I_{in}	Input Current	50		mA
P_{tot}	Total Dissipation at T_c = 25 °C	100	40	W
T_{stg}	Storage Temperature	-40 to 150		°C
T_j	Operating Junction Temperature	-40 to150		°C

THERMAL DATA

			TO-220	ISOWATT220	
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	1.25	3.12	°C/W
$R_{thj\text{-}amb}$	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	300		400	V
$V_{cg(sat)}$	Power Stage Saturation Voltage	I_c = 6 A I_{in} = 10 mA			2.5	V
I_{cl} *	Coil Current Limit	V_{in} = 5 V -40 ≤ T_j ≤ 125 °C	6.5	7	7.5	A
I_{in}	Input Current		10			mA
V_f **	Diode Forward Voltage	I_f = 10 A			2.5	V

* 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 %