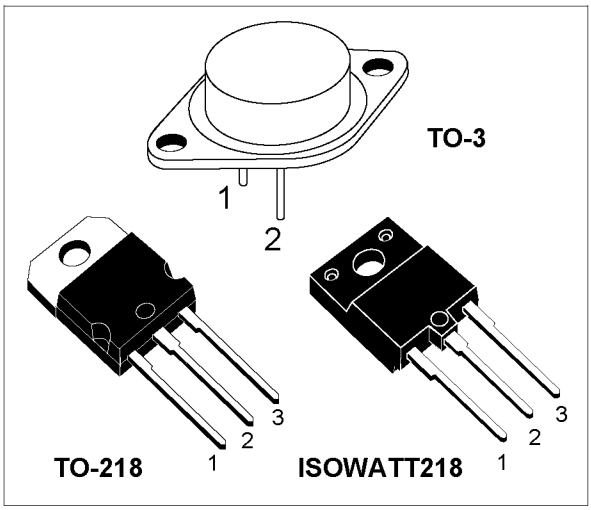
BU941Z/BU941ZP
BU941ZPFI

HIGH VOLTAGE IGNITION COIL DRIVER
NPN POWER DARLINGTON TRANSISTOR

- VERY RUGGED BIPOLAR TECHNOLOGY
- BUILT IN CLAMPING ZENER
- HIGH OPERATING JUNCTION TEMPERATURE
- WIDE RANGE OF PACKAGES
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING



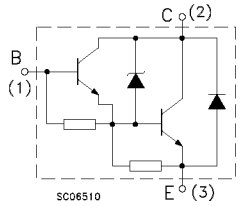
APPLICATIONS

- HIGH RUGGEDNESS ELECTRONIC IGNITIONS

DESCRIPTION

The devices are bipolar Darlington transistors manufactured using Multiepitaxial Planar technology. They have been properly designed to be used in Automotive environment as electronic ignition power actuators.

INTERNAL SCHEMATIC DIAGRAM



for **TO-3**
Emitter: pin 2
Base: pin1
Collector: tab

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		BU941Z	BU941ZP	BU941ZPFI	
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	350			V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5			V
I_C	Collector Current	15			A
I_{CM}	Collector Peak Current	30			A
I_B	Base Current	1			A
I_{BM}	Base Peak Current	5			A
P_{tot}	Total Dissipation at T_c = 25 °C	180	155	65	W
V_{isol}	Insulation Withstand Voltage (RMS) from All Three Leads to Exernal Heatsink			2500	V
T_{stg}	Storage Temperature	-65 to 200	-65 to 175	-65 to 175	°C
T_j	Max. Operating Junction Temperature	200	175	175	°C

THERMAL DATA

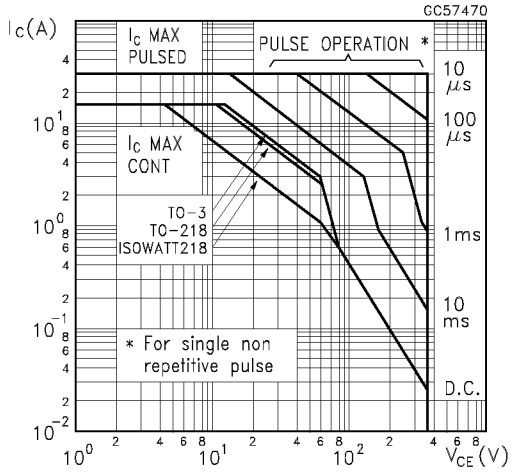
		TO-3	TO-218	ISOWATT218	
$R_{thj\text{-}case}$	Thermal Resistance Junction-case Max	0.97	0.97	2.3	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

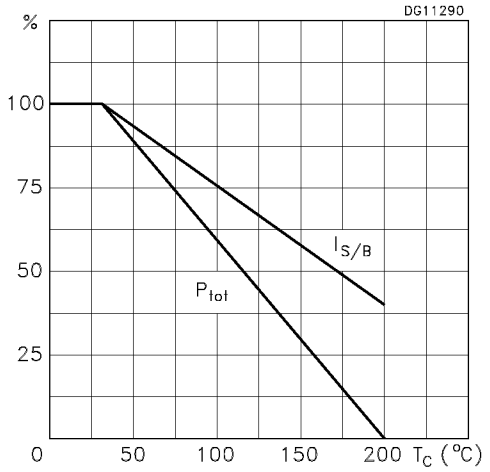
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 300 V V_{CE} = 300 V T_C = 125 °C			100 0.5	µA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			20	mA
V_{CL}*	Clamping Voltage	I_C = 100 mA	350		500	V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 8 A I_B = 100 mA I_C = 10 A I_B = 250 mA I_C = 12 A I_B = 300 mA			1.8 1.8 2	V V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 8 A I_B = 100 mA I_C = 10 A I_B = 250 mA I_C = 12 A I_B = 300 mA			2.2 2.5 2.7	V V V
h_{FE}*	DC Current Gain	I_C = 5 A V_{CE} = 10 V	300			
V_F	Diode Forward Voltage	I_F = 10 A			2.5	V
	Functional Test	V_{CC} = 24 V L = 7 mH (see fig. 1)	10			A
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	V_{CC} = 12 V L = 7 mH V_{BE} = 0 R_{BE} = 47 Ω V_{clamp} = 300 V I_C = 7 A I_B = 70 mA (see fig. 3)		15 0.5		µs µs

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

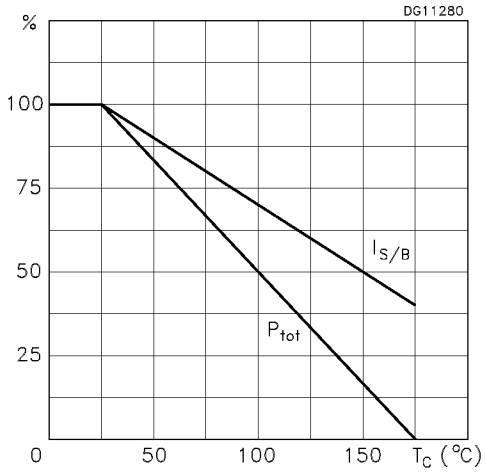
Safe Operating Areas



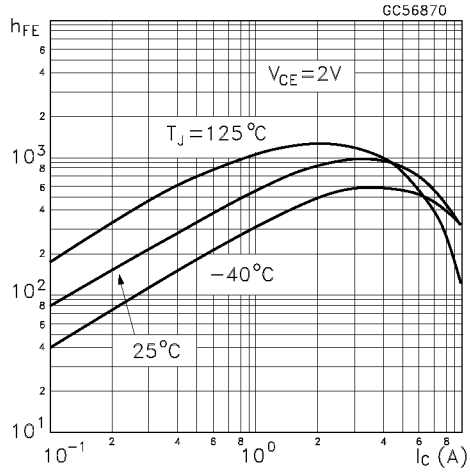
Derating Curves (TO-3)



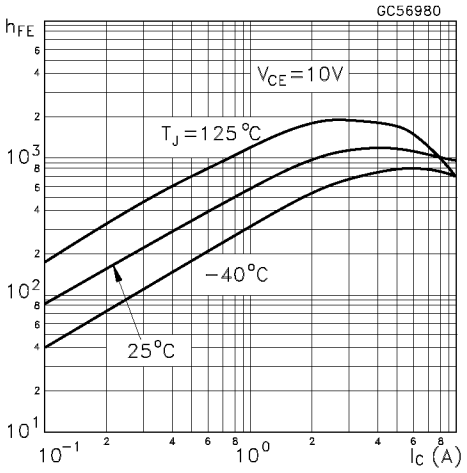
Derating Curves (TO-218/ISOWATT218)



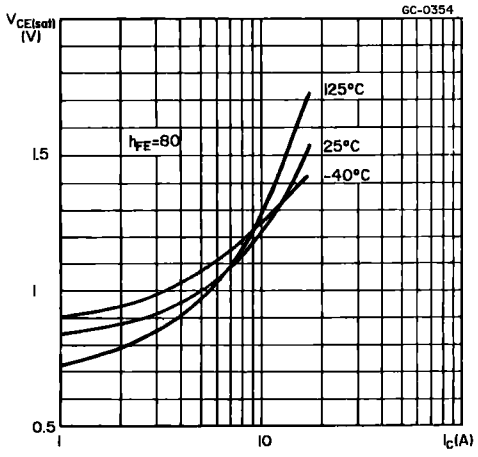
DC Current Gain



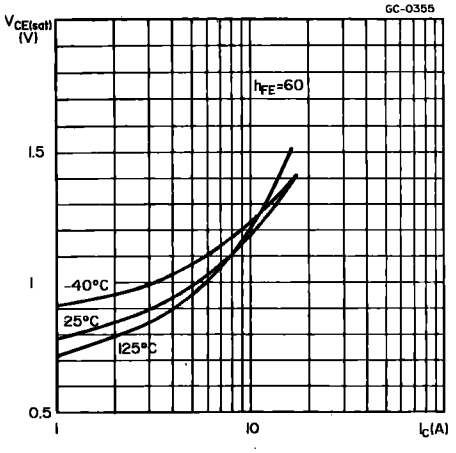
DC Current Gain



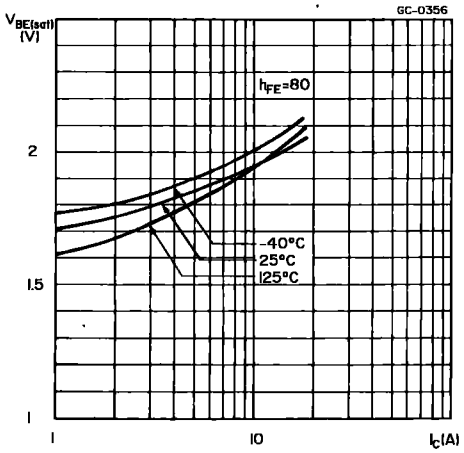
Collector-emitter Saturation Voltage



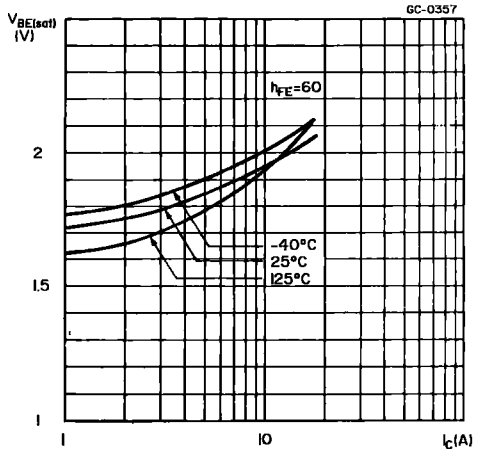
Collector-emitter Saturation Voltage



Base-emitter Saturation Voltage



Base-emitter Saturation Voltage



Collector-emitter Saturation Voltage

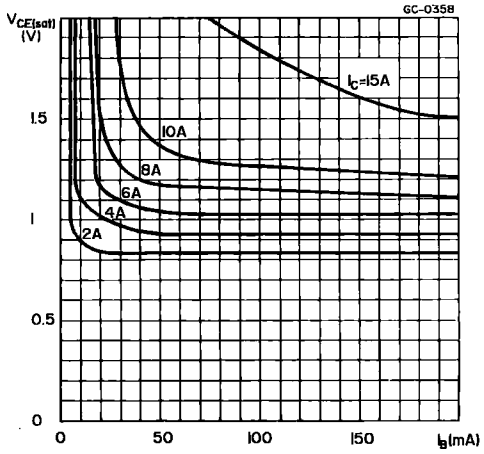


FIGURE 1: Functional Test Circuit

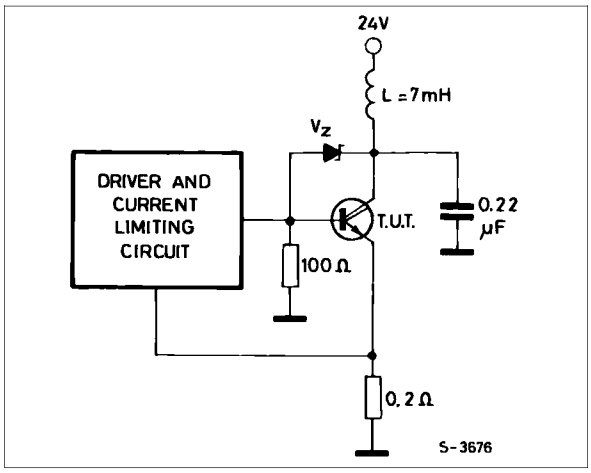


FIGURE 2: Functional Test Waveforms

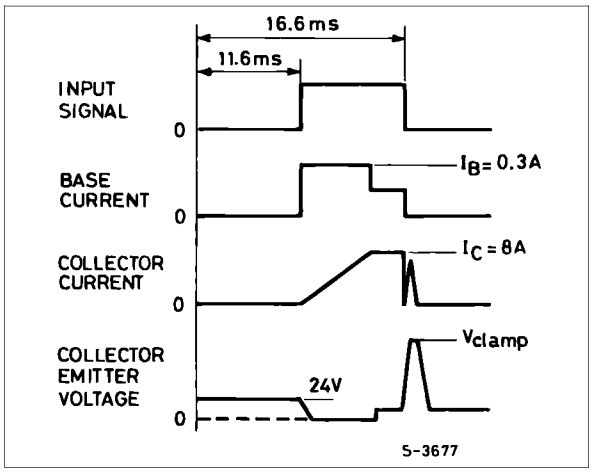


FIGURE 3: Switching Time Test Circuit