



BU931

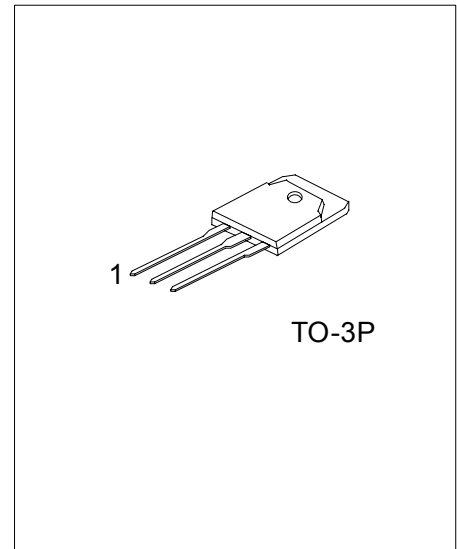
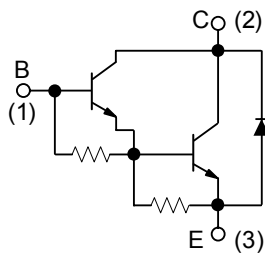
NPN SILICON TRANSISTOR

NPN POWER DARLINGTON

■ FEATURES

- * High operating junction temperature
- * High voltage ignition coil driver
- * Very rugged bipolar technology

■ INTERNAL SCHEMATIC DIAGRAM



*Pb-free plating product number: BU931L

■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
BU931-T3P-K	BU931L-T3P-K	TO-3P	B	C	E	Bulk

BU931L-T3P-K	(1)Packing Type	(1) K: Bulk
	(2)Package Type	(2) T3P: TO-3P
	(3)Lead Plating	(3) L: Lead Free Plating, Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage ($V_{BE} = 0$)	V_{CES}	500	V
Collector-Emitter Voltage ($I_B = 0$)	V_{CEO}	400	V
Emitter-Base Voltage ($I_C = 0$)	V_{EBO}	5	V
Collector Current	I_C	15	A
Collector Peak Current	I_{CM}	30	A
Base Current	I_B	1	A
Base Peak Current	I_{BM}	5	A
Total Dissipation ($T_c = 25$ °C)	P_D	175	W
Junction Temperature	T_J	+200	
Storage Temperature	T_{STG}	-65 ~ +200	

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

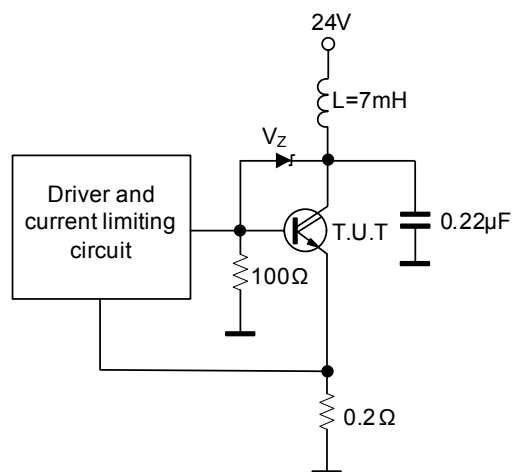
PARAMETER	SYMBOL	RATING	UNIT
Thermal Resistance Junction-Case Max	θ_{JC}	1.1	/W

■ ELECTRICAL CHARACTERISTICS

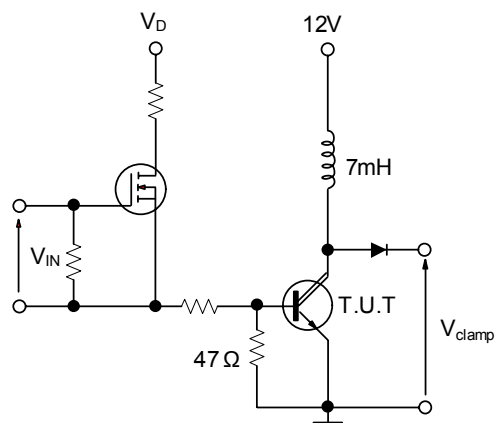
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-off Current ($I_B = 0$)	I_{CEO}	$V_{CE} = 450$ V			100	μ A
		$V_{CE} = 450$ V, $T_J = 125$ °C			0.5	mA
Emitter Cut-off Current ($I_C = 0$)	I_{EBO}	$V_{EB} = 5$ V			20	mA
Collector-Emitter Saturation Voltage(Note)	$V_{CE(SAT)}$	$I_C = 7$ A, $I_B = 70$ mA			1.6	V
		$I_C = 8$ A, $I_B = 100$ mA			1.8	V
		$I_C = 10$ A, $I_B = 250$ mA			1.8	V
Base-Emitter Saturation Voltage(Note)	$V_{BE(SAT)}$	$I_C = 7$ A, $I_B = 70$ mA			2.2	V
		$I_C = 8$ A, $I_B = 100$ mA			2.4	V
		$I_C = 10$ A, $I_B = 250$ mA			2.5	V
DC Current Gain	h_{FE}	$I_C = 5$ A, $V_{CE} = 10$ V	300			
Diode Forward Voltage	V_F	$I_F = 10$ A			2.5	V
Functional Test		$V_{CC} = 24$ V, $V_{clamp} = 400$ V $L = 7$ mH	8			A
Inductive Load Storage Time / Fall Time	t_s	$V_{CC} = 12$ V, $V_{clamp} = 300$ V $L = 7$ mH		15		μ s
	t_F	$I_C = 7$ A, $I_B = 70$ mA $V_{BE} = 0$, $R_{BE} = 47\Omega$		0.5		μ s

Note: Pulsed: Pulse duration = 300 μ s, duty cycle 1.5 %

■ TEST CIRCUITS

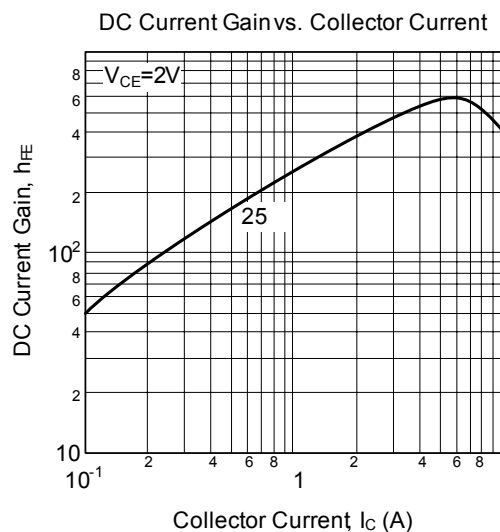
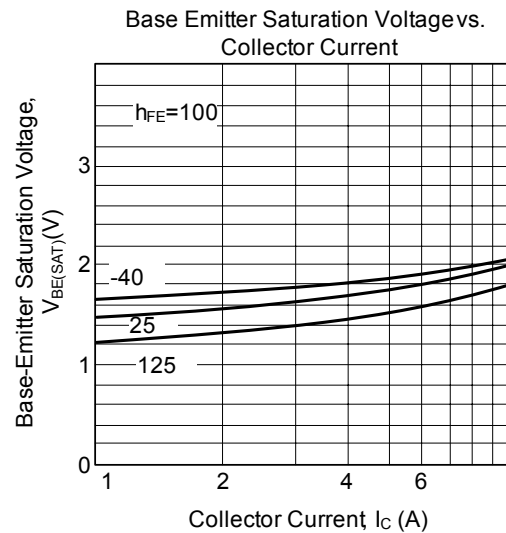
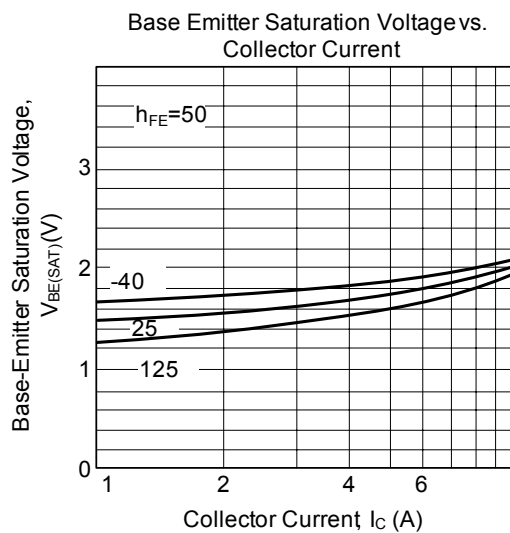
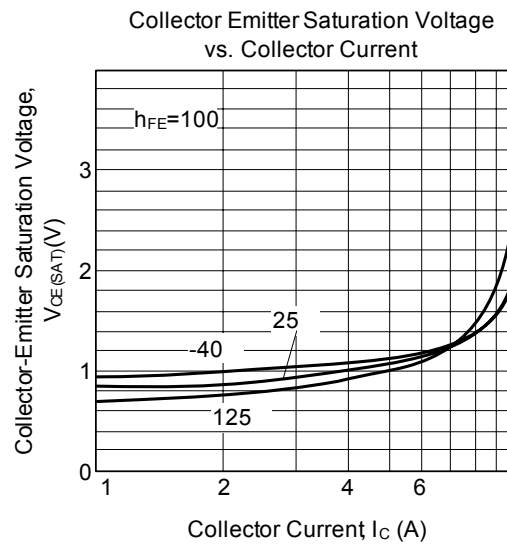
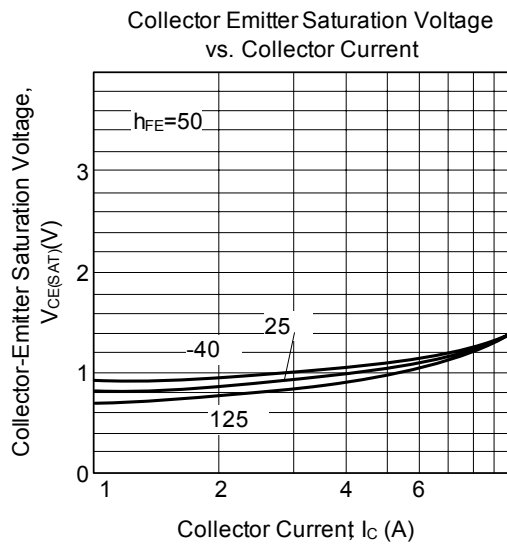


Functional Test Circuit



Switching Time Test Circuit

■ TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.