

BU931

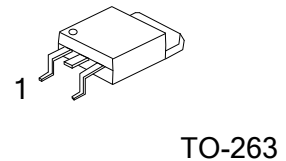
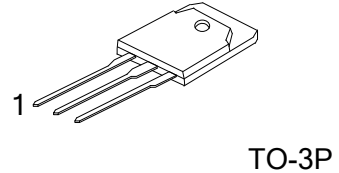
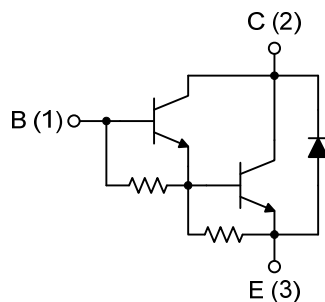
NPN SILICON TRANSISTOR

NPN POWER DARLINGTON

■ FEATURES

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

■ INTERNAL SCHEMATIC DIAGRAM



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BU931L-T3P-T	BU931G-T3P-T	TO-3P	B	C	E	Tube
BU931L-TQ2-T	BU931G-TQ2-T	TO-263	B	C	E	Tube
BU931L-TQ2-R	BU931G-TQ2-R	TO-263	B	C	E	Tape Reel

BU931L-T3P-T  (1) Packing Type (2) Package Type (3) Lead Plating	(1) T: Tube, R: Tape Reel (2) T3P: TO-3P, TQ2: TO-263 (3) L: Lead Free, G: Halogen Free
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■ 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
Power Dissipation ($T_C=25^\circ\text{C}$)	TO-3P	135	W
	TO-263	125	W
Junction Temperature	T_J	+200	°C
Storage Temperature	T_{STG}	-65 ~ +200	°C

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

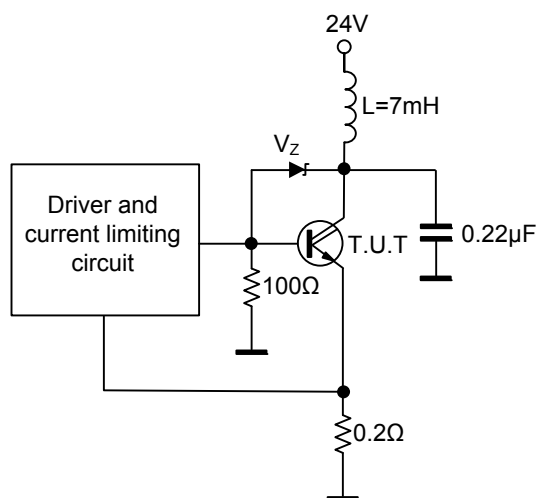
PARAMETER	SYMBOL	RATING	UNIT
Junction to Case	TO-3P	1.1	°C/W
	TO-263	1.2	°C/W

■ ELECTRICAL CHARACTERISTICS

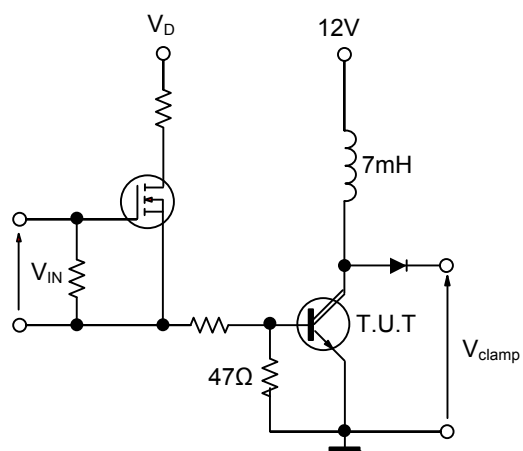
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-off Current ($I_B=0$)	I_{CEO}	$V_{CE} = 450\text{ V}$			100	μA
		$V_{CE} = 450\text{ V}, T_J = 125^\circ\text{C}$			0.5	mA
Emitter Cut-off Current ($I_C=0$)	I_{EBO}	$V_{EB} = 5\text{ V}$			20	mA
Collector-Emitter Saturation Voltage (Note)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

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

■ TEST CIRCUITS

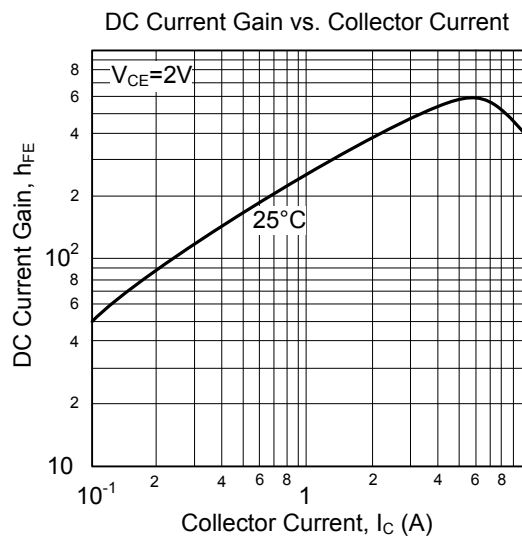
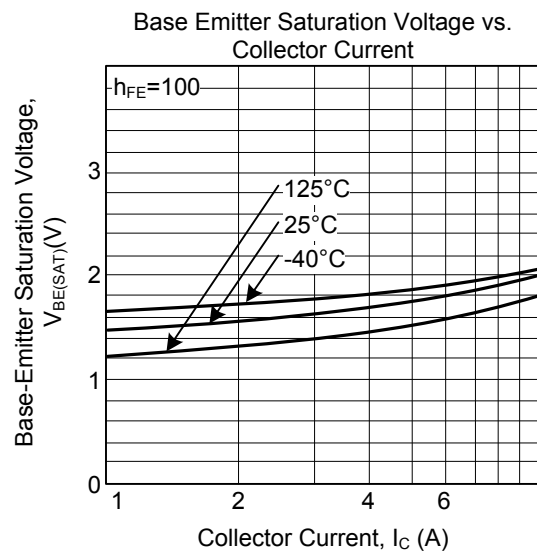
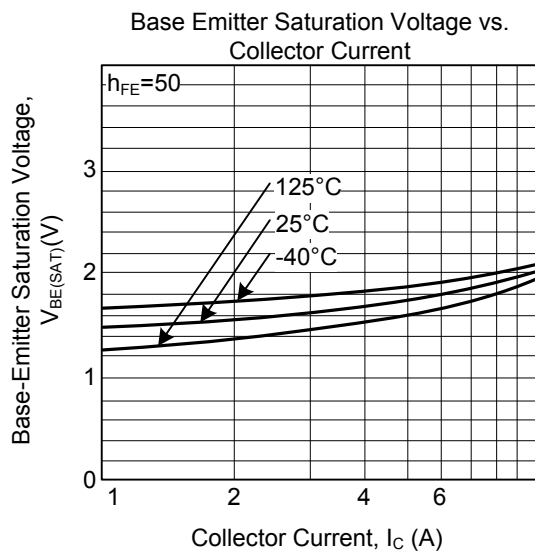
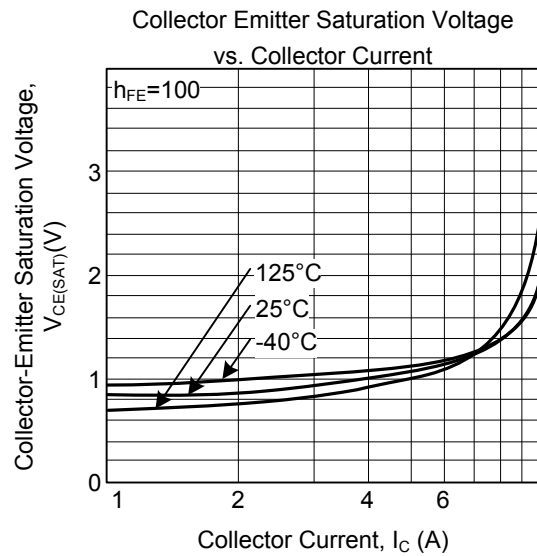
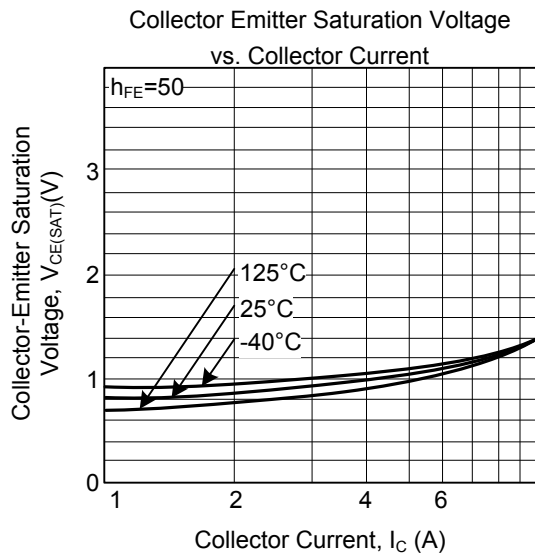


Functional Test Circuit



Switching Time Test Circuit

■ TYPICAL CHARACTERISTICS



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