



## BU941Z

### NPN SILICON TRANSISTOR

## NPN POWER DARLINGTON HIGH VOLTAGE IGNITION COIL DRIVER

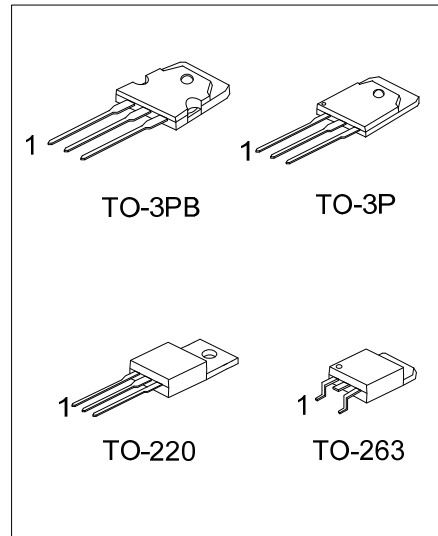
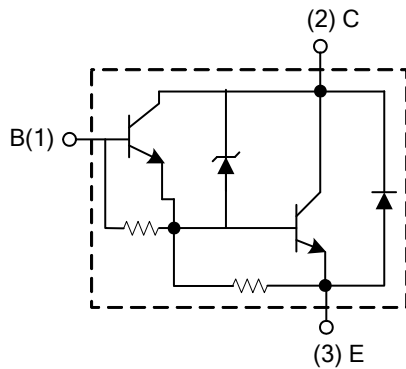
#### ■ FEATURES

- \* NPN Darlington
- \* Integrated antiparallel collector-emitter diode

#### ■ APPLICATIONS

- \* High ruggedness electric ignitions

#### ■ INTERNAL SCHEMATIC DIAGRAM



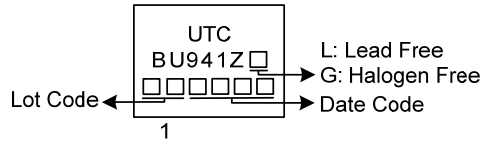
#### ■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BU941ZL-T3P-T	BU941ZG-T3P-T	TO-3P	B	C	E	Tube
BU941ZL-T3B-T	BU941ZG-T3B-T	TO-3PB	B	C	E	Tube
BU941ZL-TA3-T	BU941ZG-TA3-T	TO-220	B	C	E	Tube
BU941ZL-TQ2-T	BU941ZG-TQ2-T	TO-263	B	C	E	Tube
BU941ZL-TQ2-R	BU941ZG-TQ2-R	TO-263	B	C	E	Tape Reel

Note: Pin assignment: B: Base C: Collector E: Emitter

<p>BU941ZG-T3P-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) T3P: TO-3P, TO-3PB: TO-3PB, TA3: TO-220, TQ2: TO-263</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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### MARKING



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage		$V_{CEO}$	350	V
Emitter-Base Voltage		$V_{EBO}$	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	W
Total Power Dissipation ( $T_C=25^\circ\text{C}$ )	TO-3P/TO-3PB	$P_D$	155	W
	TO-220/TO263		150	W
Junction Temperature		$T_J$	+175	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-65 ~ +175	$^\circ\text{C}$

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.

### ■ ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Clamping Voltage	$V_{CL}^*$	$I_C=10\text{mA}$	350		500	V
Collector Cut-Off Current	$I_{CEO}$	$V_{CE}=300\text{V}$			100	$\mu\text{A}$
		$V_{CE}=300\text{V}, T_J=125^\circ\text{C}$			0.5	mA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			20	mA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}^*$	$I_C=8\text{A}, I_B=100\text{mA}$			1.6	V
		$I_C=10\text{A}, I_B=250\text{mA}$			1.8	
		$I_C=12\text{A}, I_B=300\text{mA}$			2	
Base-Emitter Saturation Voltage	$V_{BE(SAT)}^*$	$I_C=8\text{A}, I_B=100\text{mA}$			2.2	V
		$I_C=10\text{A}, I_B=250\text{mA}$			2.5	
		$I_C=12\text{A}, I_B=300\text{mA}$			2.7	
DC Current Gain	$h_{FE}^*$	$V_{CE}=10\text{V}, I_C=5\text{A}$	300		2500	
Diode Forward Voltage	$V_F$	$I_F=10\text{A}$			2.5	V
Functional Test		$V_{CC}=24\text{V}, V_{CLAMP}=400\text{V}, L=7\text{mH}$ (see Functional Test Circuit)	10			A
Fall Time	$t_F$	$V_{CC}=12\text{V}, V_{CLAMP}=300\text{V}, V_{BE}=0,$ $R_{BE}=47\Omega, L=7\text{mH}, I_C=7\text{A}, I_B=70\text{mA}$		0.5		$\mu\text{s}$
Storage Time	$t_S$	(see Fig.1)		15		

\*Pulsed: Pulse duration=300 $\mu\text{s}$ , duty cycle 1.5%

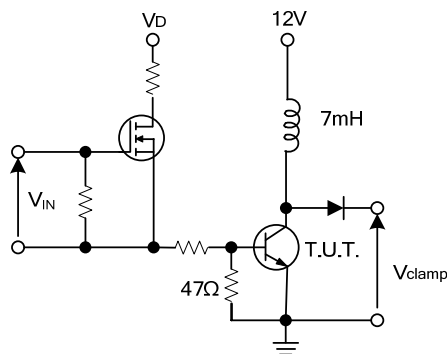
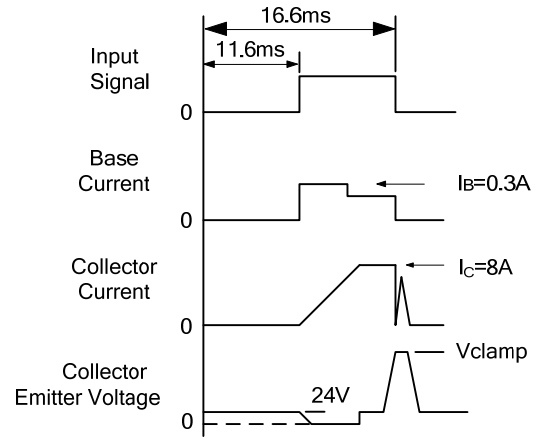
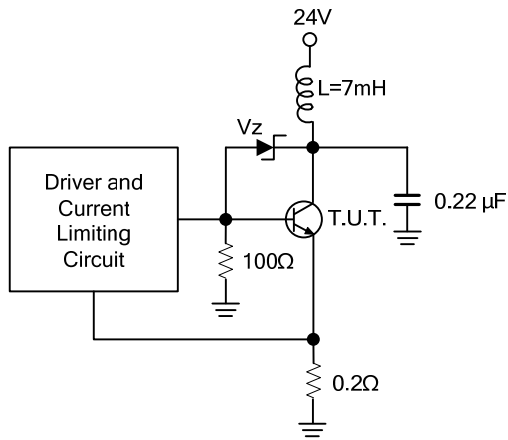
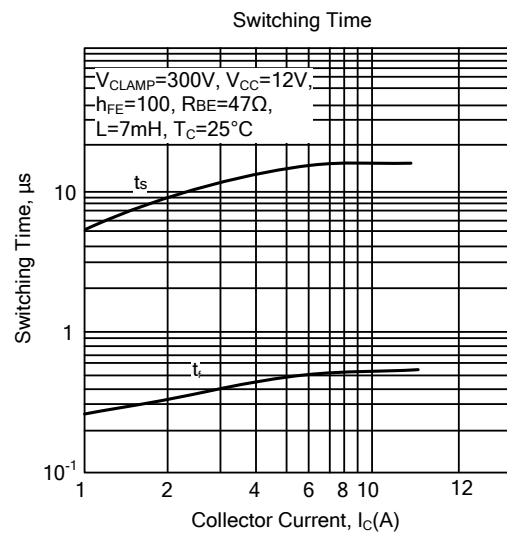
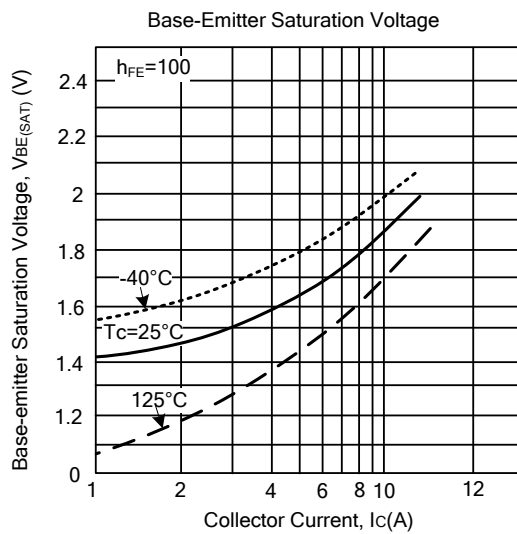
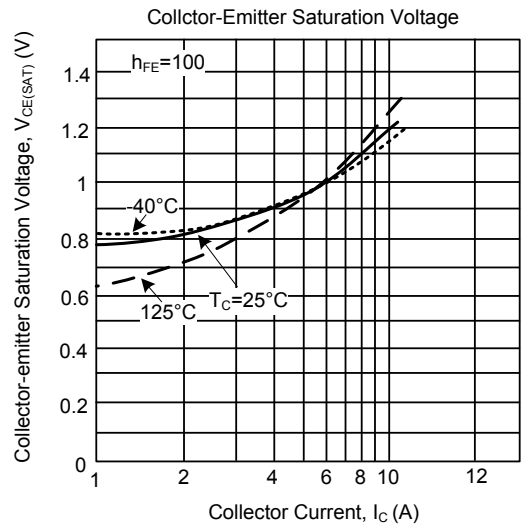
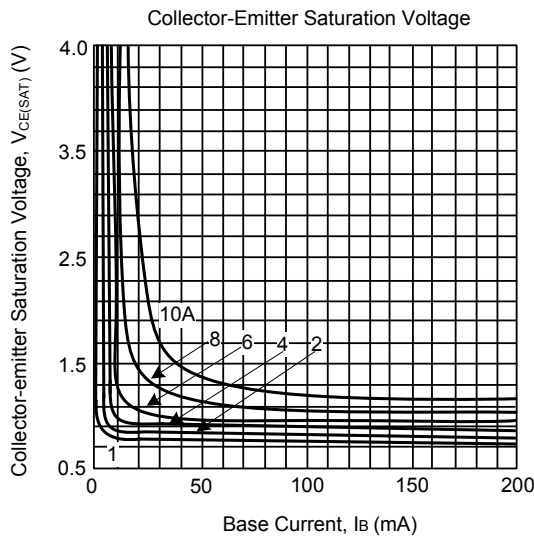
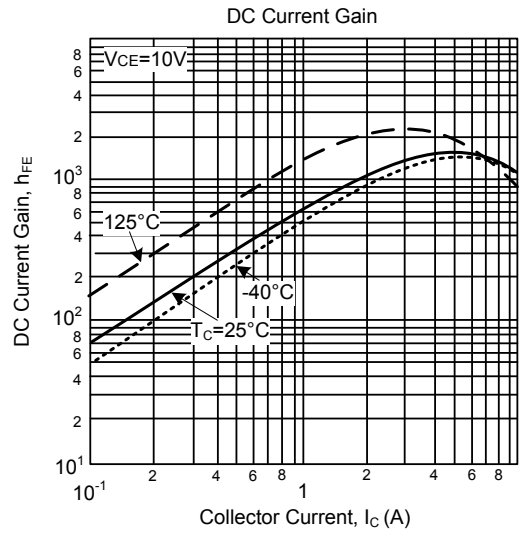
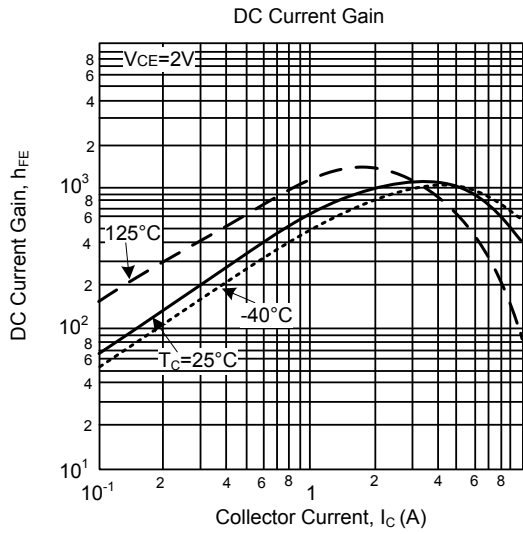


Fig. 1 Switching Time Test Circuit

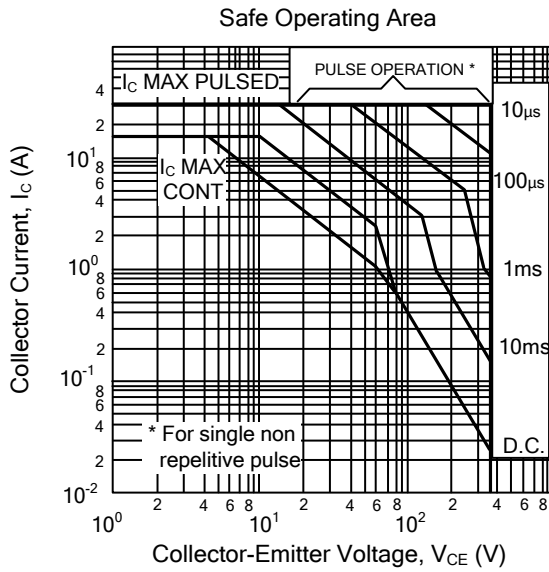
### ■ FUNCTION TEST CIRCUIT



## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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