

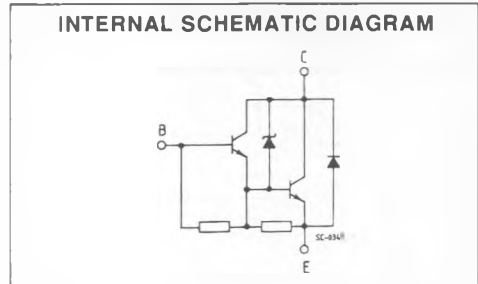
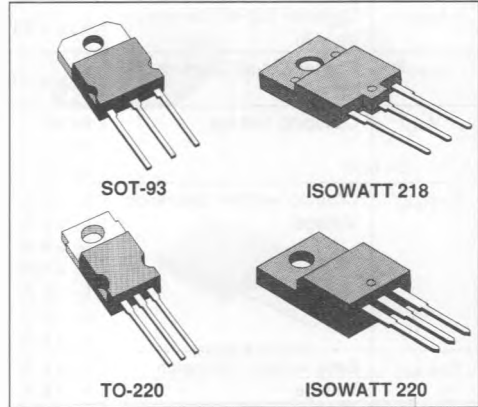
## NPN POWER DARLINGTON

ADVANCE DATA

- HIGH RUGGEDNESS
- INTEGRATED HIGH VOLTAGE ZENER

### AUTOMOTIVE MARKET

- APPLICATION IN HIGH PERFORMANCE ELECTRONIC CAR IGNITION



### DESCRIPTION

The BU921ZP, BU921ZT, BU921ZPFI and BU921ZTFI are silicon multi-epitaxial biplanar NPN transistors in monolithic darlington configuration mounted respectively in SOT-93, TO-220 plastic packages and ISOWATT218, ISOWATT220 fully isolated packages.

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value				Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	350				V
$V_{CER}$	Collector-emitter Voltage ( $R_{BE} = 100 \Omega$ )	350				V
$V_{CES}$	Collector-emitter Voltage ( $V_{BE} = 0$ )	350				V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	350				V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	5				V
$I_C$	Collector Current	16				A
$I_B$	Base Current	5				A
		<b>SOT-93</b>	<b>ISOWATT218</b>	<b>TO-220</b>	<b>ISOWATT220</b>	
$P_{Tot}$	Total Dissipation at $T_c < 25^\circ C$	125	60	100	40	W
$T_{stg}$	Storage Temperature	- 40 to 150				$^\circ C$
$T_j$	Max. Operating Junction Temperature	150				$^\circ C$

**THERMAL DATA**

			SOT-93	ISOWATT218	TO-220	ISOWATT220	
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	1	2.08	1.25	3.12	°C/W

**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25\text{ °C}$  unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$I_{CEO}$	Collector Cut-off Current ( $I_B = 0$ )	$V_{CE} = 350\text{ V}$				250	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{BE} = -5\text{ V}$				50	mA
$V_{CL}$	Clamping Voltage	either and same	$I_B = 0$ or $V_{BE} = 0$ $I_C = 100\text{ mA}$ $T_j = 125\text{ °C}$	350 350		500 500	V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 5\text{ A}$ $I_C = 6\text{ A}$ $I_C = 8\text{ A}$ $T_j = 125\text{ °C}$ $I_C = 5\text{ A}$ $I_C = 6\text{ A}$ $I_C = 8\text{ A}$	$I_B = 50\text{ mA}$ $I_B = 75\text{ mA}$ $I_B = 120\text{ mA}$ $I_B = 50\text{ mA}$ $I_B = 75\text{ mA}$ $I_B = 120\text{ mA}$		1.03 1.08 1.17 0.98 1.04 1.17	1.4 1.5 1.6	V V V V V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 6\text{ A}$ $I_C = 8\text{ A}$	$I_B = 75\text{ mA}$ $I_B = 120\text{ mA}$			2.2 2.3	V V
$h_{FE}$	DC Current Gain	$I_C = 5\text{ A}$	$V_{CE} = 10\text{ V}$	300			
$V_F^*$	Diode Forward Voltage	$I_F = 10\text{ A}$				2.5	V
	USE TEST	$V_{CC} = 24\text{ V}$ $L = 8\text{ mH}$		8			A

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