

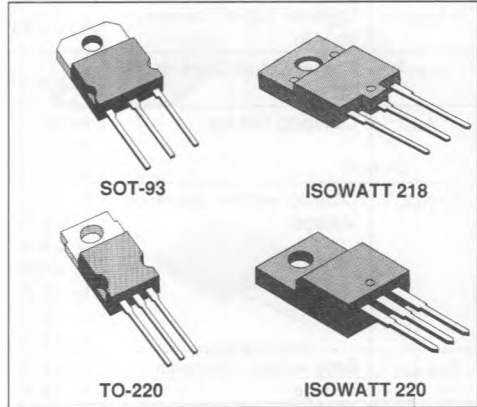
NPN POWER DARLINGTON

ADVANCE DATA

- HIGH RUGGEDNESS
- INTEGRATED HIGH VOLTAGE ZENER

AUTOMOTIVE MARKET

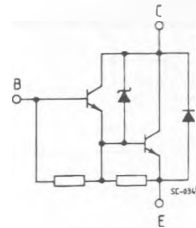
- APPLICATION IN HIGH PERFORMANCE ELECTRONIC CAR IGNITION



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.

INTERNAL SCHEMATIC DIAGRAM



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
		SOT-93	ISOWATT218	TO-220	ISOWATT220	
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	μA
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 μs , duty cycle = 1.5 %.