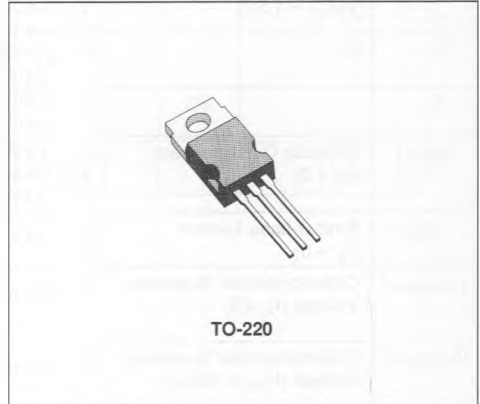


POWER DARLINGTON TRANSISTORS

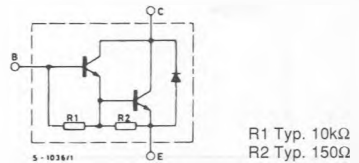
DESCRIPTION

The 2N6386, 2N6387 and 2N6388 are silicon epitaxial-base NPN transistors in monolithic Darling-ton configuration and are mounted in Jedec TO-220 plastic package.

They are intended for use in low and medium fre-quency power applications.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	2N6386	2N6387	2N6388	Unit
V_{CBO}	Collector-base Voltage ($I_B = 0$)	40	60	80	V
V_{CEV}	Collector-emitter Voltage ($V_{BE} = -1.5V$)	40	60	80	V
V_{CER}	Collector-emitter Voltage ($R_{BE} \leq 100\Omega$)	40	60	80	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	40	60	80	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	5	5	5	V
I_C	Collector Current	8	10	10	A
I_{CM}	Collector Peak Current	15			A
I_B	Base Current	250			mA
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$	65			W
T_{stg}	Storage Temperature	- 65 to 150			$^\circ C$
T_j	Junction Temperature	150			$^\circ C$

THERMAL DATA

R _{th j-case}	Thermal Resistance Junction-case	Max	1.92	°C/W
------------------------	----------------------------------	-----	------	------

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CEV}	Collector Cutoff Current V _{BE} = - 1.5V)	V _{CE} = 40V for 2N6386 V _{CE} = 60V for 2N6387 V _{CE} = 80V for 2N6388 T _{case} = 125°C V _{CE} = 40V for 2N6386 V _{CE} = 60V for 2N6387 V _{CE} = 80V for 2N6388			0.3 0.3 0.3 3 3 3	mA mA mA mA mA mA
I _{CEO}	Collector Cutoff Current (I _B = 0)	V _{CE} = 40V for 2N6386 V _{CE} = 60V for 2N6387 V _{CE} = 80V for 2N6388			1 1 1	mA mA mA
I _{EBO}	Emitter-base Current (I _C = 0)	V _{EB} = 5V			5	mA
V _{CEO(sus)} *	Collector-emitter Sustaining Voltage (I _B = 0)	I _C = 200mA for 2N6386 for 2N6387 for 2N6388	40 60 80			V V V
V _{CER(sus)} *	Collector-emitter Sustaining Voltage (R _{BE} = 100Ω)	I _C = 200mA for 2N6386 for 2N6387 for 2N6388	40 60 80			V V V
V _{CEV(sus)} *	Collector-emitter Sustaining Voltage (V _{BE} = - 1.5V)	I _C = 200mA for 2N6386 for 2N6387 for 2N6388	40 60 80			V V V
V _{CE(sat)} *	Collector-emitter Saturation Voltage	for 2N6386 I _C = 3A I _B = 6mA for 2N6387 and 2N6388 I _C = 5A I _B = 10mA for 2N6386 I _C = 8A I _B = 80mA for 2N6387 and 2N6388 I _C = 10A I _B = 100mA			2 2 3 3	V V V V
V _{BE} *	Base-emitter Voltage	for 2N6386 I _C = 3A V _{CE} = 3V for 2N6387 and 2N6388 I _C = 5A V _{CE} = 3V for 2N6386 I _C = 8A V _{CE} = 3V for 2N6387 and 2N6388 I _C = 10A V _{CE} = 3V			2.8 2.8 4.5 4.5	V V V V
h _{FE} *	DC Current Gain	for 2N6386 I _C = 3A V _{CE} = 3V for 2N6387 and 2N6388 I _C = 5A V _{CE} = 3V for 2N6386 I _C = 8A V _{CE} = 3V for 2N6387 and 2N6388 I _C = 10A V _{CE} = 3V	1000 1000 100 100		20000 20000	

* Pulsed : pulse duration = 300μs, duty cycle = 1.5%.

ELECTRICAL CHARACTERISTICS (continued)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
h_{fe}	Small Signal Current Gain	$I_C = 1A$ $V_{CE} = 10V$ $f = 1MHz$ $V_{CE} = 10V$ $f = 1KHz$	20 1000			
V_F^*	Paralled-diode Forward Voltage	for 2N6386 $I_F = 8A$ for 2N6387 and 2N6388 $I_F = 10A$			4 4	V V
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = 10V$ $f = 1MHz$			200	pF
$I_{s/b}^{**}$	Second Breakdown Collector Current	$V_{CE} = 25V$	2.6			A
$E_{s/b}$	Second Breakdown Energy	$L = 12mH$ $R_{BE} = 100\Omega$ $V_{BE} = -1.5V$ $I_C = 4.5A$	120			mJ

* Pulsed : pulse duration = 300 μ s, duty cycle = 1.5%.

** Pulsed : 1s non repetitive pulse.

For characteristic curves see BD333/BD334 series.