

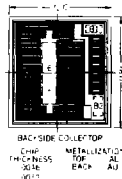
POWER DARLINGTONS

5 Amp, 150V, NPN

JAN, JANTX & JANTXV 2N6350
 JAN, JANTX & JANTXV 2N6351
 JAN, JANTX & JANTXV 2N6352
 JAN, JANTX & JANTXV 2N6353

FEATURES

- High Current Gain: up to 2000 min. @ $I_C = 5A$
- Low Saturation Voltage: as low as 1.5V max. @ $I_C = 2A$
- Peak Current: to 10A
- JAN/JANTX/JANTXV versions meet MIL-S-19500/472



DESCRIPTION

Unitrode NPN Darlington consists of a two transistor circuit on a single monolithic planar chip. The 2N6350 series is characterized for fast switching applications.

ABSOLUTE MAXIMUM RATINGS

	TO-33		3 PIN TO-66	
	JAN, JANTX & JANTXV 2N6350	JAN, JANTX & JANTXV 2N6351	JAN, JANTX & JANTXV 2N6352	JAN, JANTX & JANTXV 2N6353
Collector—Emitter Voltage	80V	150V	80V	150V
Emitter—Base Voltages				
V_{EB2}	6V	6V	6V	6V
V_{EB1}	12V	12V	12V	12V
D.C. Collector Current	5A	5A	5A	5A
Peak Collector Current	10A	10A	10A	10A
Base 1 Current	0.5A	0.5A	0.5A	0.5A
Power Dissipation				
25°C Ambient	1W	1W	2W	2W
100°C Case	5W	5W	25W	25W
Thermal Resistance				
Junction-to-Case	20°C/W	20°C/W	4.0°C/W	4.0°C/W
Operating and Storage Temperature Range	-65°C to +200°C	-65°C to +200°C	-65°C to +200°C	-65°C to +200°C

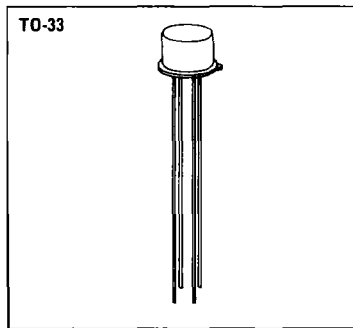
MECHANICAL SPECIFICATIONS

JAN, JANTX & JANTXV 2N6350

COLLECTOR CONNECTED TO CASE

JAN, JANTX & JANTXV 2N6351

	ins	mm
A	305-335	7.75-8.51
B	335-370	8.51-9.40
C	240-260	6.10-6.60
D	017 ± 002	432 ± 051
E	1.5 MIN	38.10 MIN
F	018 MAX	0.46 MAX
G	031 ± 003	0.79 ± 0.08
H	200	1.52
J	100	2.54
K	029-045	0.74-1.14
L	100	2.54

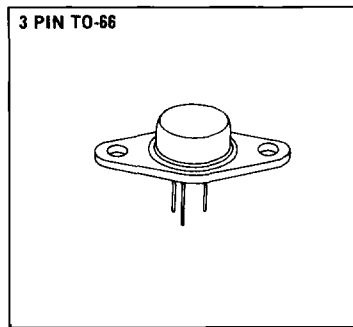


JAN, JANTX & JANTXV 2N6352

COLLECTOR CONNECTED TO CASE

JAN, JANTX & JANTXV 2N6353

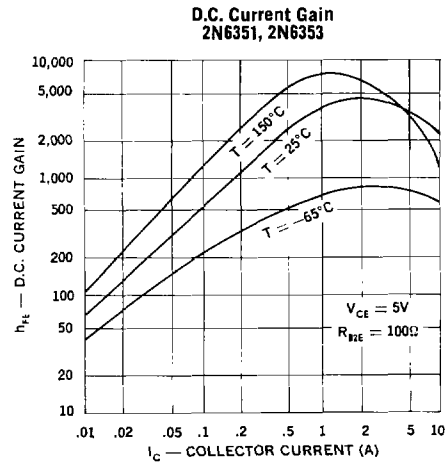
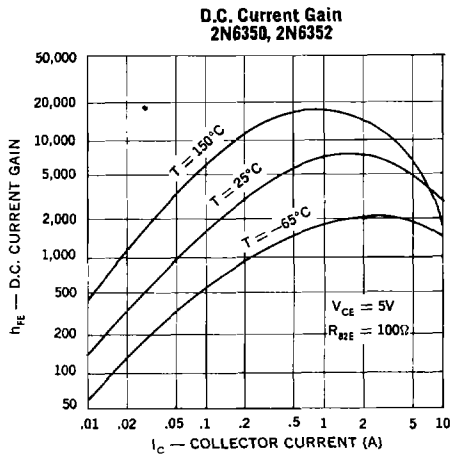
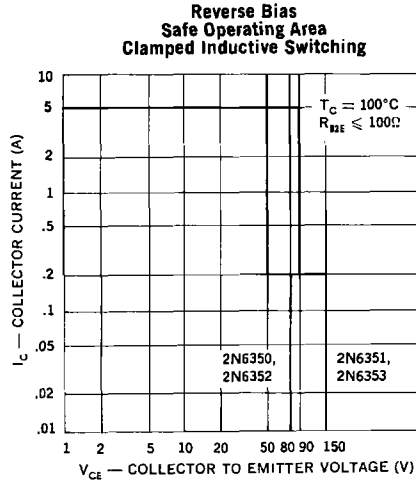
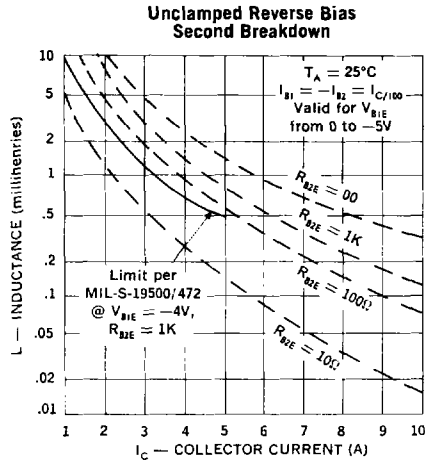
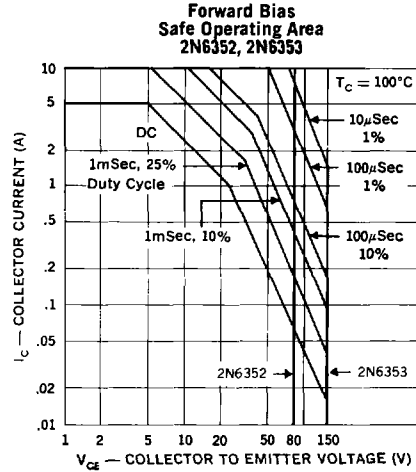
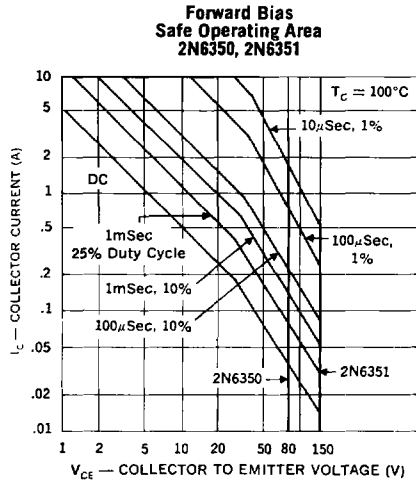
	ins	mm
A	250-340	6.35-8.64
B	620 MAX	15.75 MAX
C	050-075	1.27-1.91
D	028-034	0.71-0.86
E	360 MIN	9.14 MIN
F	958-962	24.33-24.43
G	190-210	4.83-5.33
H	190-210	4.83-5.33
J	350 MAX RAD	8.89 MAX RAD
K	570-590	14.48-14.99
L	142-152	3.61-3.86
M	145 MAX RAD	3.68 MAX RAD



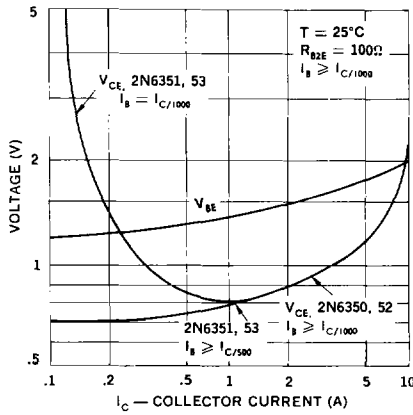
ELECTRICAL SPECIFICATIONS (at 25°C unless noted)

2

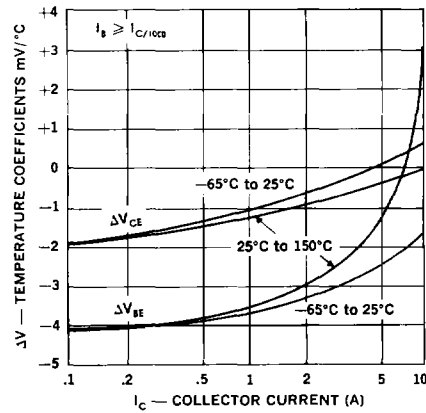
Test	Symbol	Min.	Max.	Units	MIL-STD-750	
					Method	Test Conditions
Visual and Mechanical					2071	See Mechanical Data
25°C Collector-Emitter Breakdown Voltage 2N6350, 2N6352 2N6351, 2N6353	BV_{CER}	80 150		Vdc Vdc	3011	$I_C = 25mA$, $R_{BE1} = 2.2K$, $R_{BE2} = 100\text{ Ohms}$
Emitter Base Breakdown Voltage, Base 1 Emitter Base Breakdown Voltage, Base 2 Collector — Emitter Cutoff Current D.C. Current Gain 2N6350, 2N6352 2N6351, 2N6353	BV_{EB01} BV_{EB02} I_{CEX} h_{FE}	12 6 2000 1000	1.0	Vdc Vdc μAdc	3026 3026 3041 3076	$I_E = 12mA$ Base 2 Open $I_E = 12mA$ Base 1 Open $V_{CE} = BV_{CER}$ Rating $V_{CE} = 5Vdc$; $I_C = 1.0A$ (pulse) $R_{BE2} = 1K$
D.C. Current Gain 2N6350, 2N6352 2N6351, 2N6353	h_{FE}	2000 1000	10000 10000		3076	$V_{CE} = 5Vdc$; $I_C = 5.0Adc$ (pulse) $R_{BE2} = 100\text{ Ohms}$
D.C. Current Gain 2N6350, 2N6352 2N6351, 2N6353	h_{FE}	400 200			3076	$V_{CE} = 5Vdc$; $I_C = 10Adc$ (pulse) $R_{BE2} = 100\text{ Ohms}$
Collector Saturation Voltage 2N6350, 2N6352 2N6351, 2N6353	$V_{CE}(\text{sat})$		1.5 2.5	Vdc Vdc	3071	$I_C = 5.0Adc$, $R_{BE2} = 100\text{ Ohms}$ $I_{B1} = 5mAdc$ (pulse) $I_{B1} = 10mAdc$ (pulse)
Base Saturation Voltage A.C. Current Gain Output Capacitance	$V_{BE1}(\text{on})$ $ h_{FE} $ C_{OB01}	5	2.5 25 120	Vdc pf	3066 3066 3236	$I_C = 5.0Adc$ (pulse), $V_{CE} = 5Vdc$ $R_{BE2} = 100\text{ Ohms}$ $V_{CE} = 10Vdc$, $I_C = 1.0Adc$, $f = 10MHz$ $R_{BE2} = 100\text{ Ohms}$ $V_{CB1} = 10Vdc$, $100KHz \leq f \leq 1MHz$ Base 2 open
Turn-on Time Turn-off Time	t_{on} t_{off}		0.5 1.2	μs μs	3251 3251	$V_{CC} = 30Vdc$; $I_C = 5.0Adc$ See Switching Speed Circuit $V_{CC} = 30Vdc$; $I_C = 5.0Adc$ See Switching Speed Circuit
150°C Collector-Emitter Cutoff Current	I_{CEX}		1.0	$mAdc$	3041	$V_{EB1} = 2Vdc$, $R_{BE2} = 100\text{ Ohms}$ $V_{CE} = BV_{CER}$ Rating
-65°C D.C. Current Gain 2N6350, 2N6352 2N6351, 2N6353	h_{FE}	400 200			3076	$V_{CE} = 5Vdc$, $I_C = 5.0Adc$ (pulse) $R_{BE2} = 100\text{ Ohms}$



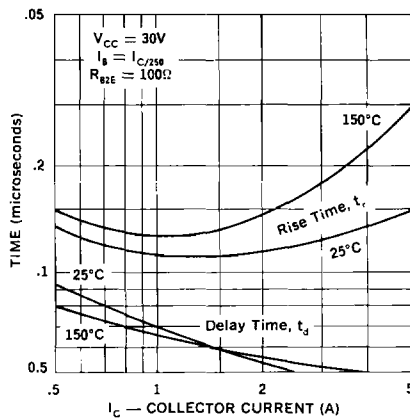
Saturation Voltages



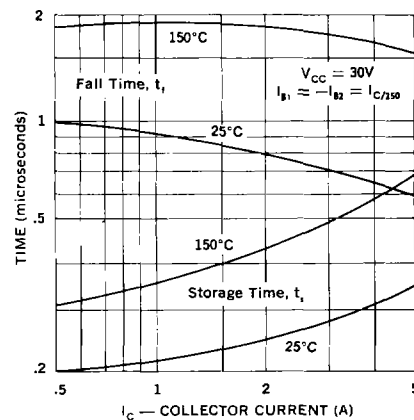
Saturation Voltage Temperature Coefficients



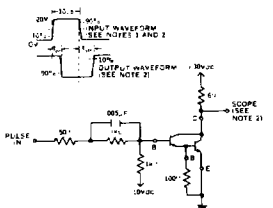
Switching Speed Characteristics



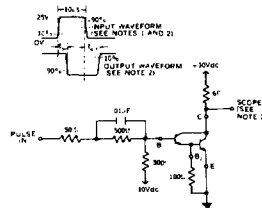
Switching Speed Characteristics



2N6350 & 52 Switching Speed Circuit



2N6351 & 3 Switching Speed Circuit



- NOTES
1. The input waveform is supplied by a pulse generator with the following characteristics:
 $t_r \leq 15\text{ ns}$, $t_f \leq 15\text{ ns}$, $Z_o = 50\Omega$, $PW \leq 10\text{ }\mu\text{s}$,
Duty cycle $\leq 2\%$.
 2. Output waveforms are monitored on an oscilloscope with the following characteristics:
 $t_r \leq 15\text{ ns}$, $Z_i \geq 10\text{ k}\Omega$, $C_i \leq 15\text{ pF}$.
 3. Resistors shall be noninductive types.
 4. The DC power supplies may require additional bypassing in order to minimize ringing.

Thermal Response

