2N6286 & 2N6287

PNP Darlington Power Silicon Transistor

Rev. V3

Features

- Available in JAN, JANTX and JANTXV per MIL-PRF-19500/505
- TO-3 (TO-204AA) Package
- Designed for General Purpose Amplifier and Low-Frequency Switching Applications

Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Collector - Emitter Breakdown Voltage	I_C = -100 mA dc 2N6286 2N6287	$V_{(BR)CEO}$	V dc	-80 -100	—
Collector - Emitter Cutoff Current	V_{CE} = -40 V dc, 2N6286 V_{CE} = -50 V dc, 2N6287	I_{CEO}	mA dc	—	-1.0
Collector - Emitter Cutoff Current	V_{CE} = -80 V dc, V_{BE} = +1.5 V dc, 2N6286 V_{CE} = -100 V dc, V_{BE} = +1.5 V dc, 2N6287	I_{CEX1}	µA dc	—	-10
Emitter - Base Cutoff Current	V_{EB} = -7 V dc	I_{EBO}	mA dc	—	-2.5
Forward Current Transfer Ratio	V_{CE} = -3 V dc; I_C = -1 A dc V_{CE} = -3 V dc; I_C = -10 A dc V_{CE} = -3 V dc; I_C = -20 A dc	h_{FE}	-	1,500 1,250 300	18,000
Collector - Emitter Saturation Voltage	I_C = -20 A dc; I_B = -200 mA dc I_C = -10 A dc; I_B = -40 mA dc	$V_{CE(sat)1}$ $V_{CE(sat)2}$	V dc	—	-3.0 -2.0
Base - Emitter Saturation Voltage	I_C = -20 A dc; I_B = -200 mA dc	$V_{BE(sat)}$	V dc	—	-4.0
Base - Emitter Voltage	V_{CE} = -3 V dc; I_C = -10 A dc	V_{BE}	V dc	—	-2.8
Collector - Emitter Cutoff Current	T_A = +150°C V_{CE} = -80 V dc, V_{BE} = +1.5 V dc, 2N6286 V_{CE} = -100 V dc, V_{BE} = +1.5 V dc, 2N6287	I_{CEX2}	mA dc	—	-5.0
Collector - Emitter Saturation Voltage	T_A = +150°C I_C = - 10 A dc; I_B = -40 mA dc	$V_{CE(sat)3}$	V dc	—	-2.0
Forward Current Transfer Ratio	T_A = -55°C V_{CE} = -3 V dc; I_C = -10 A dc	h_{FE4}	-	150	
Dynamic Characteristics					
Magnitude of Common - Emitter Small-Signal Short-Circuit Forward - Current Transfer Ratio	V_{CE} = -3 V dc; I_C = -10 A dc; f = 1.0 MHz	$\lvert h_{fe} \rvert$	-	8	80
Small-Signal Short-Circuit Forward - Current Transfer Ratio	V_{CE} = -3 V dc; I_C = -10 A dc; f = 1.0 kHz	h_{fe}	-	300	—
Open Circuit Output Capacitance	V_{CB} = -10 V dc; I_E = 0; 100 kHz ≤ f ≤ 1 MHz	C_{obo}	pF	—	400
Switching Characteristics					
Turn-On Time	V_{CC} = -30 V dc; I_C = -10 A dc; I_B = -40 mA dc	t_{on}	µs	—	2.0
Turn-Off Time	V_{CC} = -30 V dc; I_C = -10 A dc; I_{B1} = I_{B2} = -40 mA dc	t_{off}	µs	—	10

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Absolute Maximum Ratings (T_A = +25°C unless otherwise noted)

Ratings	Symbol	2N6286	2N6287	Units
Collector - Emitter Voltage	V_{CEO}	-80	-100	V dc
Collector - Base Voltage	V_{CBO}	-80	-100	V dc
Emitter - Base Voltage	V_{EBO}	-7		V dc
Collector Current	I_C	-20		A dc
Base Current	I_B	-0.5		A dc
Total Power Dissipation @ T_C = +25°C (1) @ T_C = +100°C	P_T	175 87.5		W
Operating & Storage Temperature Range	TJ, T_{STG}	-65 to +200		°C

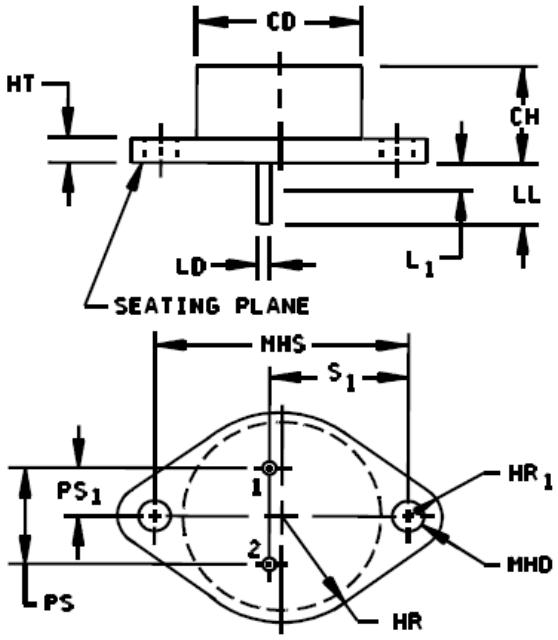
(1) Derate linearly @ 1.16 W/ °C above T_C > +25°C.

Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.855°C/W

Safe Operating Area		
DC Tests:	T_C = +25 °C; t = 1.0 s; I Cycle	
Test 1:	V_{CE} = -8.75 V dc; I_C = -20 A dc	
Test 2:	V_{CE} = -30 V dc; I_C = -5.8 A dc	
Test 3:	V_{CE} = -80 Vdc; I_C = -100 mA dc	2N6286
	V_{CE} = -100 Vdc; I_C = -100 mA dc	2N6287

Outline Drawing (TO-3)



NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Body contour is optional within zone defined by CD.
4. These dimensions shall be measured at points .050 inch (1.27 mm) to .055 inch (1.40 mm) below seating plane.
5. Both terminals.
6. At both ends.
7. Two holes.
8. Terminal 1 is the emitter, terminal 2 is base. The collector shall be electrically connected to the case.
9. LD applies between L_1 and LL. Diameter is uncontrolled in L_1.
10. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

FIGURE 1. Physical dimensions (similar to TO-3).

Outline Drawing (TO-3)

Symbol	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD		.875		22.23	3
CH	.250	.360	6.35	9.14	
HR	.495	.525	12.57	13.34	
HR_1	.131	.188	3.33	4.78	
HT	.060	.135	1.52	3.43	
LD	.038	.043	0.97	1.09	5, 9
LL	.312	.500	7.92	12.7	5
L_1		.050		1.27	5, 9
MHD	.151	.165	3.84	4.19	7
MHS	1.177	1.197	29.90	30.40	
PS	.420	.440	10.67	11.18	4
PS_1	.205	.225	5.21	5.72	
S_1	.655	.675	16.64	17.15	

FIGURE 1. Physical dimensions (similar to TO-3) - Continued.