

# 2N1483, 2N1484, 2N1485,



## NPN Medium Power Silicon Transistor

Rev. V2

### Features

- Available in JAN, JANTX and JANTXV per MIL-PRF-19500/180
- TO-8 Package
- Ideal For Medium Power Applications That Require High Frequency Switching in a Low Profile Package



### Electrical Characteristics $T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Collector - Emitter Breakdown Voltage	$I_C = 100 \text{ mA dc}$ 2N1483, 2N1485 2N1484, 2N1486	$V_{(BR)CEO}$	V dc	40 55	—
Collector - Emitter Breakdown Voltage	$V_{EB} = 1.5 \text{ V dc}$ , $I_C = 0.25 \text{ mA dc}$ 2N1483, 2N1485 2N1484, 2N1486	$V_{(BR)CEX}$	V dc	—	60 100
Collector - Base Breakdown Voltage	$I_C = 100 \mu\text{A dc}$ 2N1483, 2N1485 2N1484, 2N1486	$V_{(BR)CBO}$	V dc	—	60 100
Emitter - Base Cutoff Current	$V_{EB} = 12 \text{ V dc}$	$I_{EBO}$	$\mu\text{A dc}$	—	15
Collector - Emitter Cutoff Current	$V_{EB} = 1.5 \text{ V dc}$ $V_{CB} = 60 \text{ V dc}$ , 2N1483, 2N1485 $V_{CB} = 100 \text{ V dc}$ , 2N1484, 2N1486	$I_{CEX}$	$\text{mA dc}$		.25 .25
Collector - Base Cutoff Current	$V_{CB} = 30 \text{ V dc}$ , 2N1483, 2N1485 $V_{CB} = 50 \text{ V dc}$ , 2N1484, 2N1486	$I_{CBO1}$	$\mu\text{A dc}$		15 15
Forward Current Transfer Ratio	$V_{CE} = 4.0 \text{ Vdc}$ , $I_C = 750 \text{ mA dc}$ 2N1483, 2N1484 2N1485, 2N1486	$h_{FE2}$	-	20 35	60 100
Base - Emitter Voltage (non-saturated)	$V_{CE} = 4.0\text{V dc}$ , $I_C = 750 \text{ mA dc}$	$V_{BE}$	V dc		2.0
Collector - Emitter Saturation Voltage	$I_C = 750 \text{ mA dc}$ $I_B = 75 \text{ mA dc}$ 2N1483, 2N1484 $I_B = 40 \text{ mA dc}$ 2N1485, 2N1486	$V_{CE(SAT)}$	V dc	—	1.20 0.75

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### Electrical Characteristics ( $T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Collector - Base Cutoff Current	$V_{CB} = 60\text{ V dc}$ , 2N1483, 2N1485 $V_{CB} = 100\text{ V dc}$ , 2N1484, 2N1486	$I_{CBO3}$	$\mu\text{A dc}$	—	100 100
Collector - Base Cutoff Current	$T_A = +175^\circ\text{C}$ $V_{CB} = 30\text{ V dc}$ , 2N1483, 2N1485 $V_{CB} = 50\text{ V dc}$ , 2N1484, 2N1486	$I_{CBO2}$	mA		1.0 1.0
Forward - Current Transfer Ratio	$T_A = -55^\circ\text{C}$ $V_{CE} = 4.0\text{ V dc}$ , $I_C = 750\text{ mA dc}$ 2N1483, 2N1484 2N1485, 2N1486	$h_{FE2}$	-	10 17	
<b>Dynamic Characteristics</b>					
Small Signal, Short Circuit, Forward-Current Transfer Ratio Cutoff Frequency	$V_{CB} = 28\text{ V dc}$ , $I_C = 5.0\text{ mA dc}$	$f_{hfb}$	kHz	600	
Open Circuit Output Capacitance	$V_{CB} = 10\text{ V dc}$ , $I_E = 0$ , $100\text{ kHz} \leq f \leq 1\text{ MHz}$	$C_{obo}$	pF	—	400
<b>Switching Characteristics</b>					
Pulse Response	$V_{CC} = +12\text{V dc}$ , $R_C = 15.9\ \Omega$ , $I_{B0} = I_{B2} = 35\text{ mA dc}$ ; $I_{B1} = 65\text{ mA dc}$	$t_{on} + t_{off}$	$\mu\text{s}$	—	25

### Absolute Maximum Ratings ( $T_A = +25^\circ\text{C}$ unless otherwise specified)

Ratings	Symbol	2N1483 2N1485	2N1484 2N1486
Collector - Emitter Voltage	$V_{CEO}$	40 V dc	55 V dc
Collector - Base Voltage	$V_{CBO}$	60 V dc	100 V dc
Emitter - Base Voltage	$V_{EBO}$	12 V dc	
Collector Current	$I_C$	3.0 A dc	
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ <sup>(1)</sup> @ $T_C = 25^\circ\text{C}$ <sup>(2)</sup>	$P_T$	1.75 W 25 W	
Operating & Storage Temperature Range	$T_J, T_{STG}$	-65°C to +200°C	

(1) Derate linearly 0.010 W/°C for  $T_A > +25^\circ\text{C}$

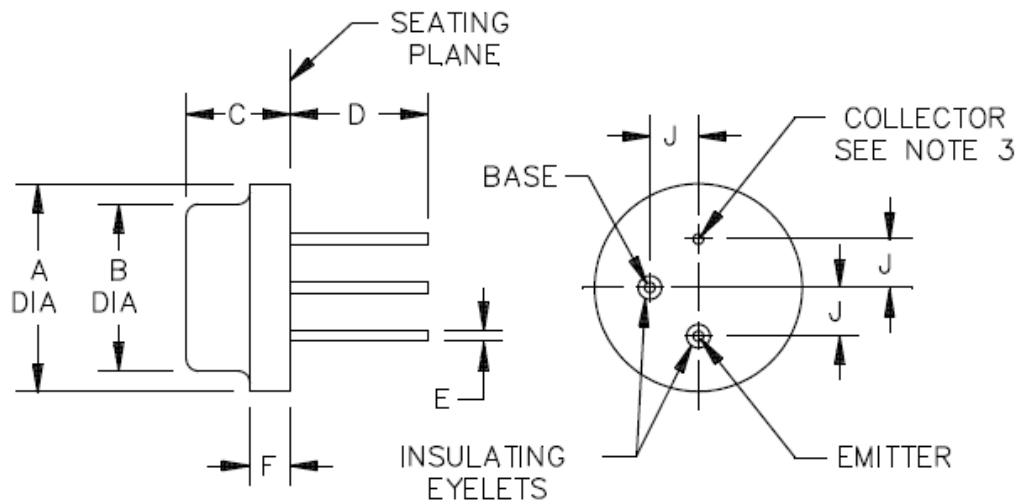
(2) Derate linearly 0.143 W/°C for  $T_C > +25^\circ\text{C}$

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### Outline Drawing (TO-8)



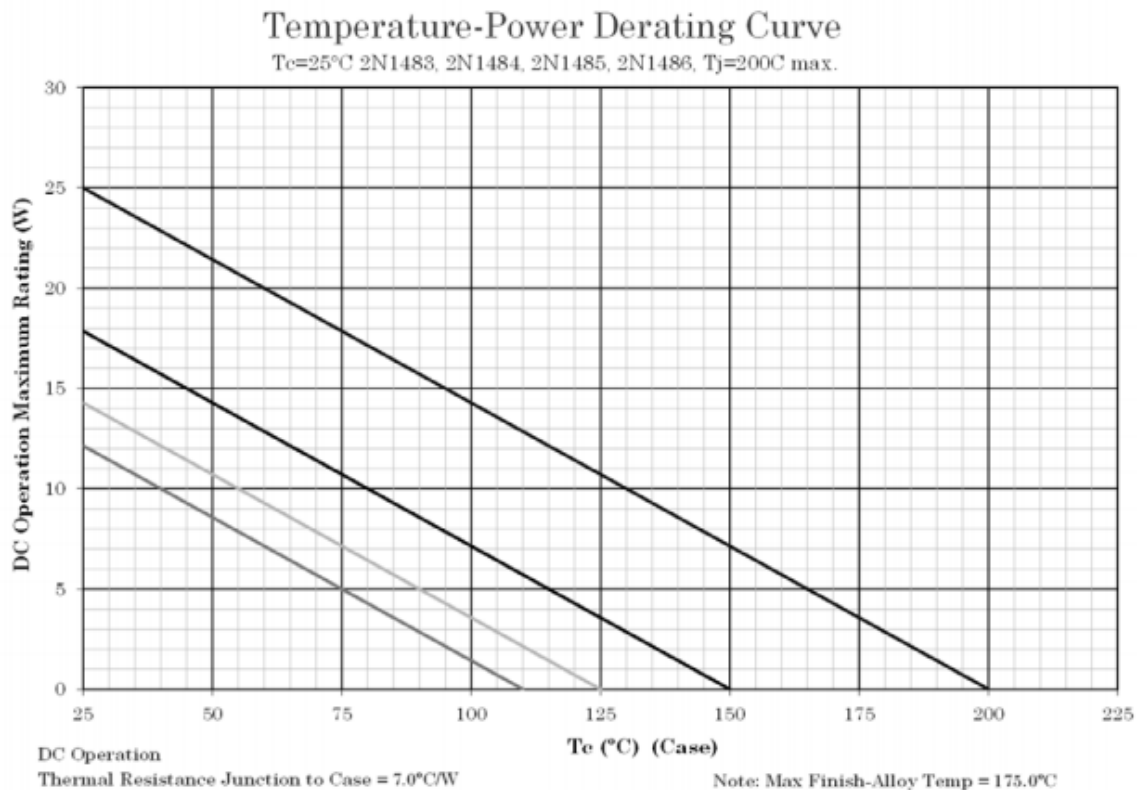
LTR	Dimensions				Notes	LTR	Dimensions				Notes
	Inches		Millimeters				Inches		Millimeters		
	Min	Max	Min	Max			Min	Max	Min	Max	
A	.550	.650	13.97	16.51		E	.027	.033	0.69	0.84	3, 4
B	.444	.524	11.28	13.31		F		.115		2.92	
C	.270	.330	6.86	8.38		J	.136	.146	3.45	3.71	
D	.360	.440	9.14	11.18	3						

#### NOTES:

1. Dimensions are in inches. Millimeters are given for general information only.
2. The collector shall be internally connected to the case.
3. All three leads.
4. Measured in the zone beyond .050 (1.27 mm) front the seating plane.

FIGURE 1. Dimensions and configuration of TO-8 package.

### Temperature Derating Curve



#### NOTES:

1. This is the true inverse of the worst case thermal resistance value. All devices are capable of operating at less than or equal to  $T_j$  specified on this curve. Any parallel line to this curve will intersect the appropriate power for the desired maximum  $T_j$  allowed.
2. Derate design curve constrained by the maximum junction temperature ( $T_j \leq +200^\circ\text{C}$ ) and power rating specified. (See 1.3 herein.)
3. Derate design curve chosen at  $T_j \leq +150^\circ\text{C}$ , where the maximum temperature of electrical test is performed.
4. Derate design curves chosen at  $T_j \leq +125^\circ\text{C}$ , and  $+110^\circ\text{C}$  to show power rating where most users want to limit  $T_j$  in their application.

FIGURE 2. Temperature-power derating graph.

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