

PNP Epitaxial Silicon Transistor

Features

- High Current Capability: $I_C = -17\text{ A}$
- High Power Dissipation: 150 W
- High Frequency: 30 MHz
- High Voltage: $V_{CEO} = -250\text{ V}$
- Wide S.O.A. for Reliable Operation
- Excellent Gain Linearity for Low THD
- Thermal and Electrical Spice Models are Available
- These Devices are Pb-Free and are RoHS Compliant

Applications

- High-Fidelity Audio Output Amplifier
- General Purpose Power Amplifier

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Ratings	Units
Collector-Base Voltage	BV_{CBO}	-250	V
Collector-Emitter Voltage	BV_{CEO}	-250	V
Emitter-Base Voltage	BV_{EBO}	-5	V
Collector Current (DC)	I_C	-17	A
Base Current	I_B	-1.5	A
Total Device Dissipation ($T_C = 25^\circ\text{C}$)	P_D	150	W
Derate Above 25°C		1.04	W/ $^\circ\text{C}$
Junction and Storage Temperature	T_J, T_{STG}	-50 ~ +150	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (Note 1)

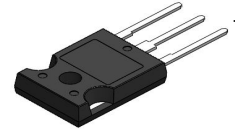
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Max.	Units
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.83	$^\circ\text{C/W}$

1. Device mounted on minimum pad size.

h_{FE} CLASSIFICATION

Classification	R	O
h_{FE1}	55 ~ 110	80 ~ 160



TO-247-3

1. Base
2. Collector
3. Emitter

ORDERING INFORMATION

HT2SA1943-ODZ

HT2SA1943-RDZ

&HT2SA1943 = Specific Device Code
 &O,R = Version
 &D = Packaging
 &Z = Pb-Free Package
 &\# = Date Code

$T_A = -50^\circ$ to 150°C for all packages

Electrical Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV _{CBO}	Collector-Base Breakdown Voltage	I _C =-5mA, I _E =0	-250			V
BV _{CEO}	Collector-Emitter Breakdown Voltage	I _C =-10mA, R _{BE} =∞	-250			V
BV _{EBO}	Emitter-Base Breakdown Voltage	I _E =-5mA, I _C =0	-5			V
I _{CBO}	Collector Cut-off Current	V _{CB} =-230V, I _E =0			-5.0	μA
I _{EBO}	Emitter Cut-off Current	V _{EB} =-5V, I _C =0			-5.0	μA
h _{FE1}	DC Current Gain	V _{CE} =-5V, I _C =-1A	55		160	
h _{FE2}	DC Current Gain	V _{CE} =-5V, I _C =-7A	35	60		
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C =-8A, I _B =-0.8A		-0.4	-3.0	V
V _{BE(on)}	Base-Emitter On Voltage	V _{CE} =-5V, I _C =-7A		-1.0	-1.5	V
f _T	Current Gain Bandwidth Product	V _{CE} =-5V, I _C =-1A		30		MHz
C _{ob}	Output Capacitance	V _{CB} =-10V, f=1MHz		360		pF

* Pulse Test: Pulse Width=20μs, Duty Cycle≤2%

Typical Characteristics

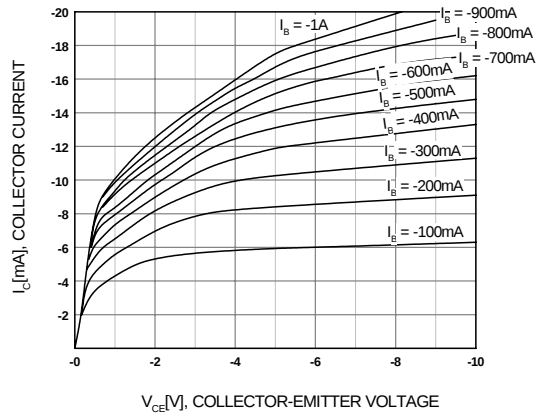


Figure 1. Static Characteristic

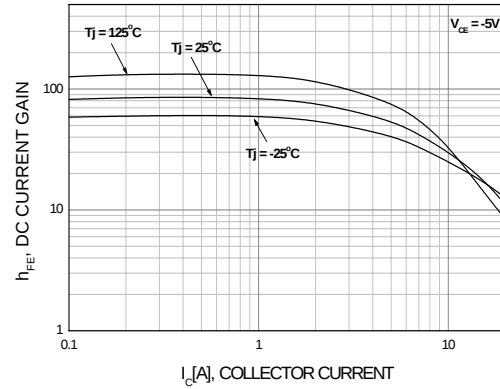


Figure 2. DC current Gain (R Grade)



Figure 3. DC current Gain (O Grade)

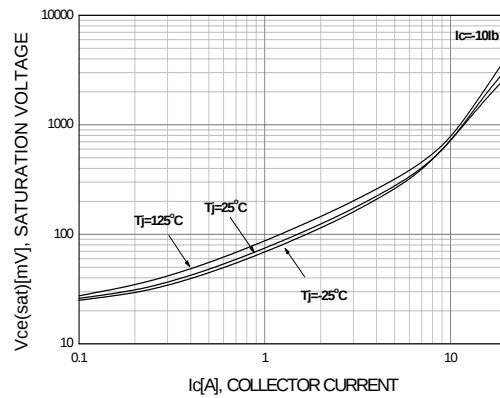


Figure 4. Collector-Emitter Saturation Voltage

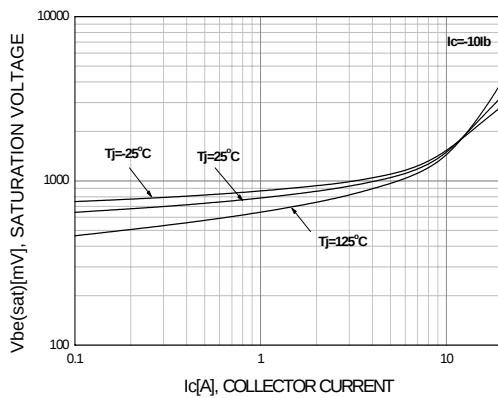


Figure 5. Base-Emitter Saturation Voltage

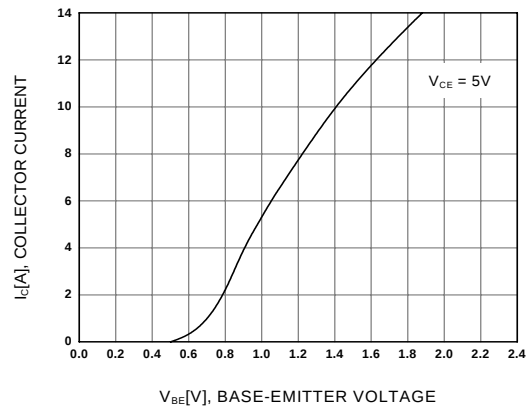


Figure 6. Base-Emitter On Voltage

Typical Characteristics

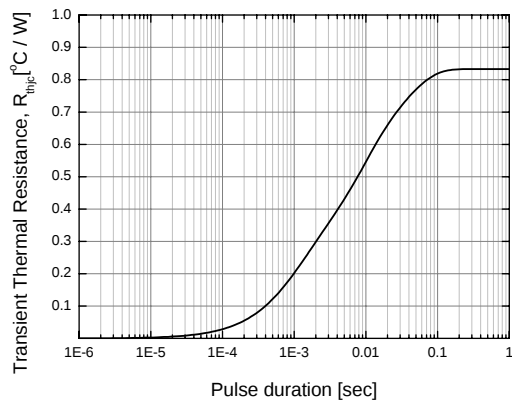


Figure 7. Thermal Resistance

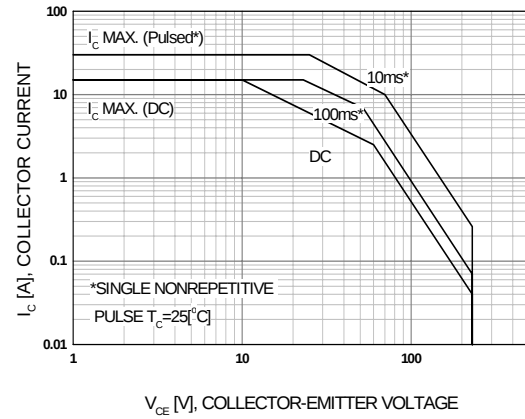


Figure 8. Safe Operating Area

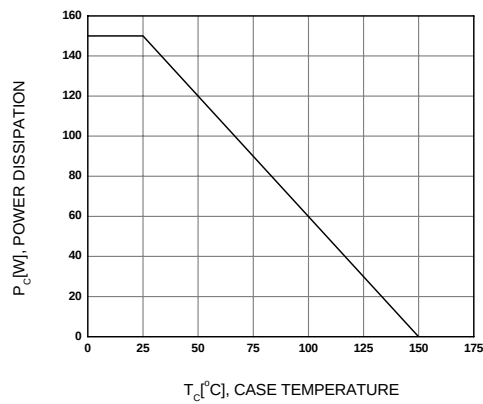
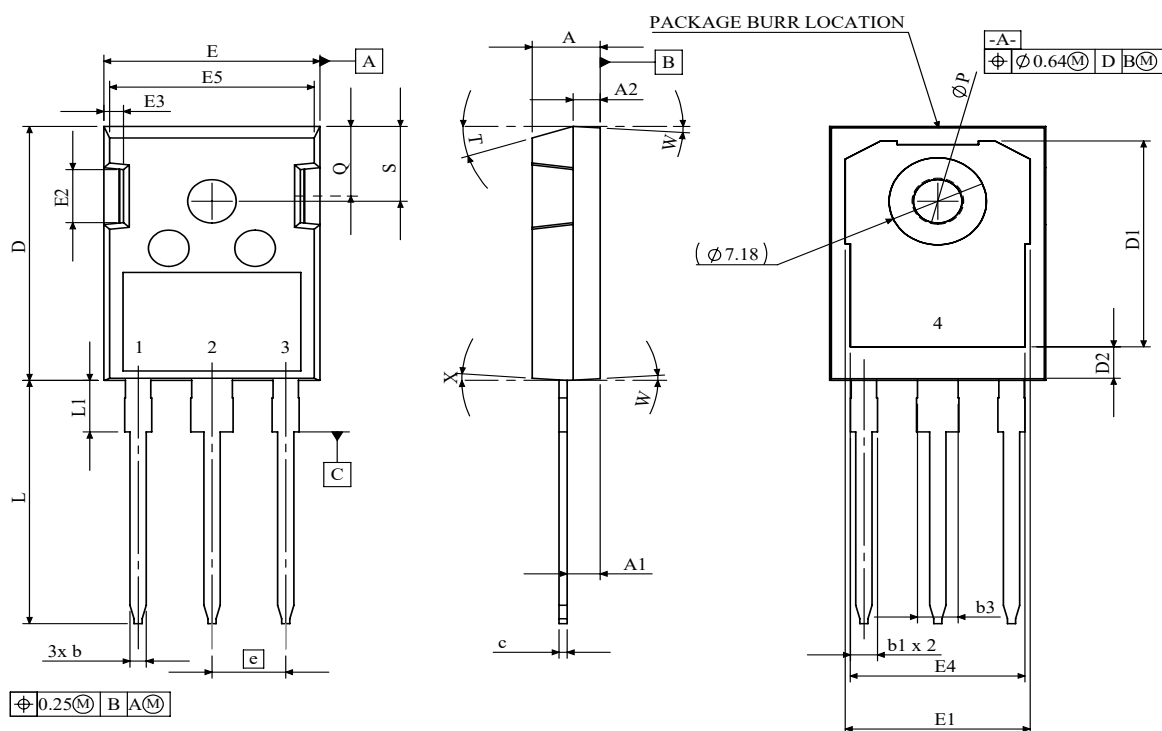


Figure 9. Power Derating

Package Dimensions – T0-247-3L



SYMBOL	MIN (mm)	MAX (mm)
A	4.83	5.21
A1	2.27	2.52
A2	1.91	2.16
b	1.07	1.33
b1	1.91	2.41
b3	2.87	3.38
c	0.55	0.74
D	20.75	21.05
D1	16	17.4
D2	2.86	3.26
E	15.75	16.13
E1	13.5	14.55
E2	3.68	5.1
E3	1	1.9
E4	12.38	13.43
E5	14.65	15.05
e	5.44 BSC	
L	19.73	20.48
L1	3.97	4.69
ØP	3.18	4.06
Q	5.42	5.96
S	5.85	6.49
T	17.5° REF.	
W	3.5° REF.	
X	4° REF.	

1	GATE
2	DRAIN
3	SOURCE
4	DRAIN

NOTES:

1. ALL METAL SURFACES ARE TIN PLATED (MATTE), EXCEPT AREA OF CUT.
2. DIMENSIONING & TOLERANCING CONFORM TO ASME Y14.5M-1994.
3. ALL DIMENSIONS ARE LISTED IN MILLIMETERS. ANGLES ARE IN DEGREES.
4. BURR OR MOLD FLASH SIZE (0.5 mm) IS NOT INCLUDED IN THE DIMENSIONS

Recommended Solder Pad Layout

