

**Features**

- Low Collector Saturation Voltage
- Suitable for Middle Power Driver
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

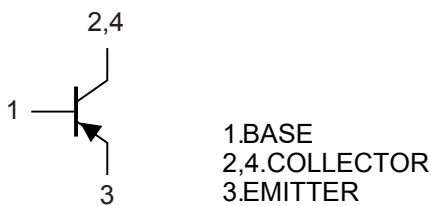
**Maximum Ratings @ 25°C Unless Otherwise Specified**

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 125°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	-100	V
Collector-Emitter Voltage	$V_{CEO}$	-60	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Continuous Collector Current	$I_C$	-5	A
Power Dissipation	$P_D$	1	W

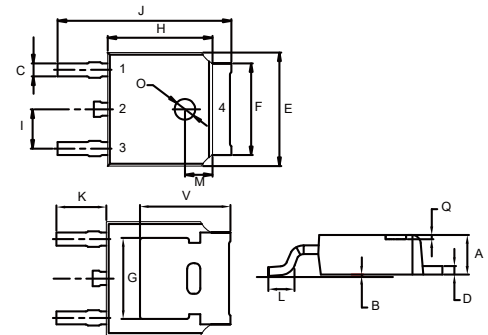
**Marking: A1952**

**Internal Structure**



**PNP  
Plastic-Encapsulate  
Transistors**

**DPAK(TO-252)**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		TYP.
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		TYP.
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		TYP.
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.211		5.35		TYP.

**Electrical Characteristics @  $T_A=25^\circ\text{C}$  Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-100			V	$I_C=-50\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-60			V	$I_C=-1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E=-50\mu\text{A}, I_C=0$
Collector Cutoff Current	$I_{CBO}$			-10	$\mu\text{A}$	$V_{CB}=-100\text{V}, I_E=0$
Emitter Cutoff Current	$I_{EBO}$			-10	$\mu\text{A}$	$V_{EB}=-5\text{V}, I_C=0$
DC Current Gain	$h_{FE(1)}$	120		270		$V_{CE}=-2\text{V}, I_C=-1\text{A}$
	$h_{FE(2)}$	40				$V_{CE}=-2\text{V}, I_C=-3\text{A}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.3	V	$I_C=-3\text{A}, I_B=-150\text{mA}$
				-0.5	V	$I_C=-4\text{A}, I_B=-200\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-1.2	V	$I_C=-3\text{A}, I_B=-150\text{mA}$
				-1.5	V	$I_C=-4\text{A}, I_B=-200\text{mA}$
Transition Frequency	$f_T$		80		MHz	$V_{CE}=-10\text{V}, I_C=-500\text{mA}, f=30\text{MHz}$
Collector Output Capacitance	$C_{ob}$		130		pF	$V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$
Turn-on Time	$t_{on}$			0.3	$\mu\text{s}$	$V_{CC}=-30\text{V}, I_C=-3\text{A}, I_{B1}=I_{B2}=-150\text{mA}$
Storage Time	$t_s$			1.5	$\mu\text{s}$	
Fall Time	$t_f$			0.3	$\mu\text{s}$	

**Curve Characteristics**

Fig. 1 - Static Characteristics

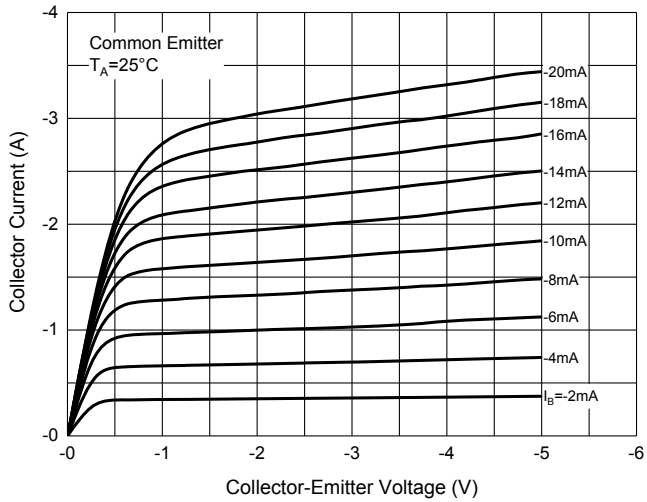


Fig. 2 - DC Current Gain Characteristics

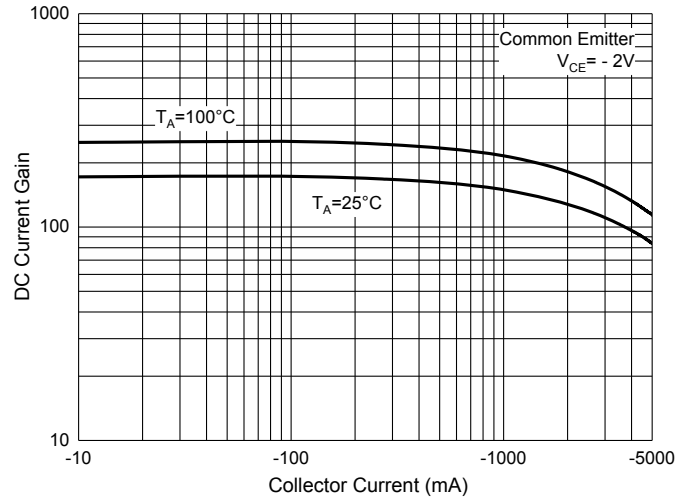


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

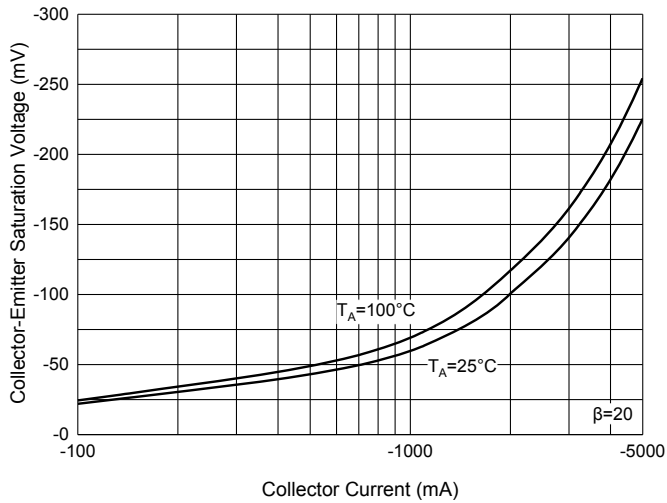


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

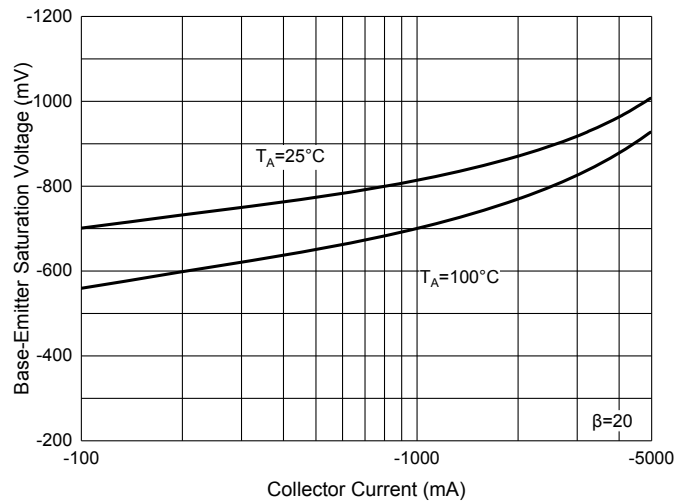


Fig. 5 - Base-Emitter Voltage Characteristics

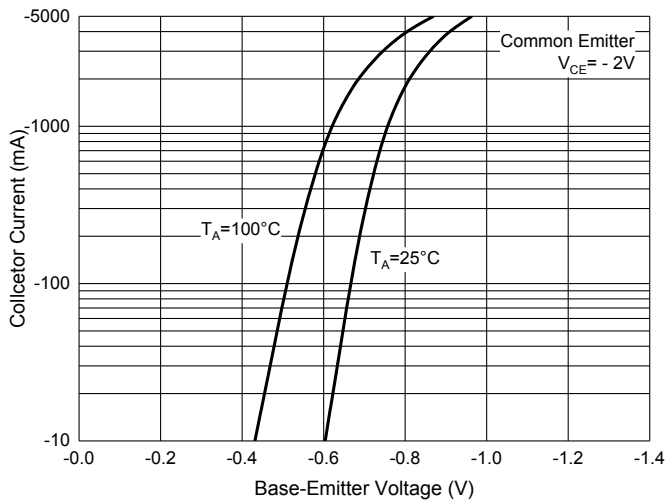
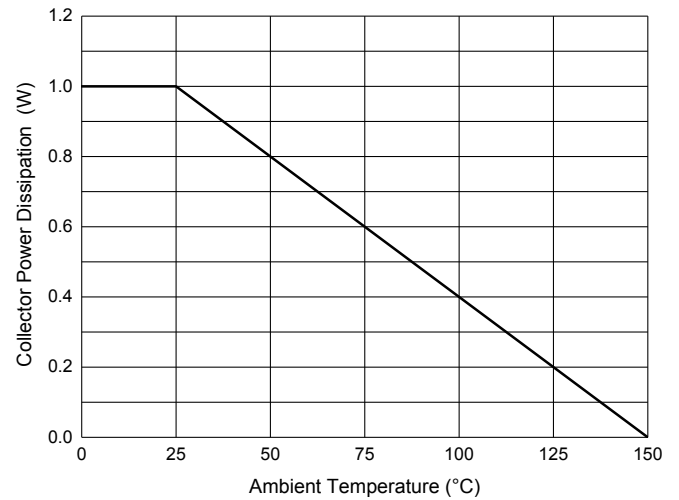


Fig. 6 - Collector Power Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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