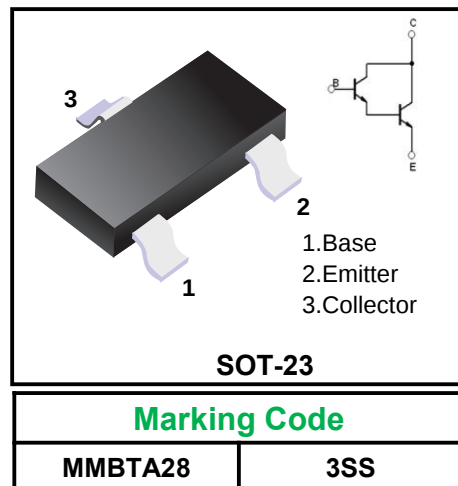


NPN Darlington Transistors



FEATURES

◆High Current Gain

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

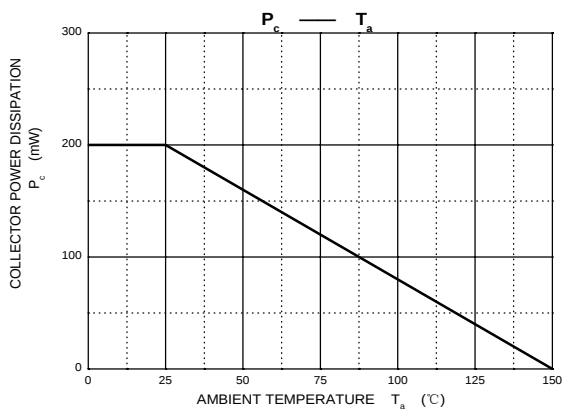
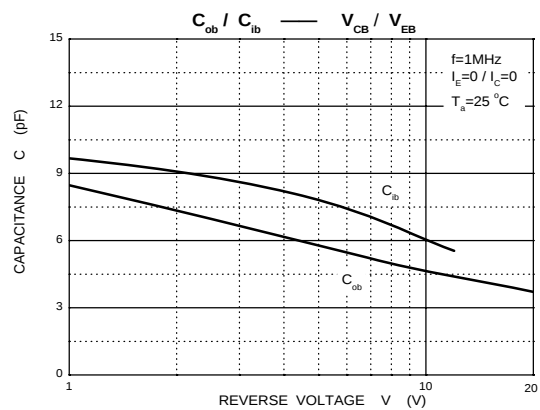
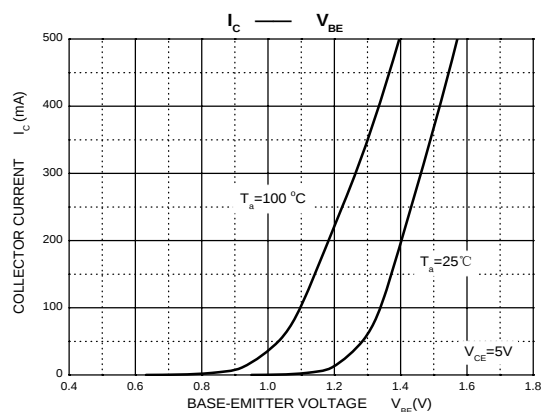
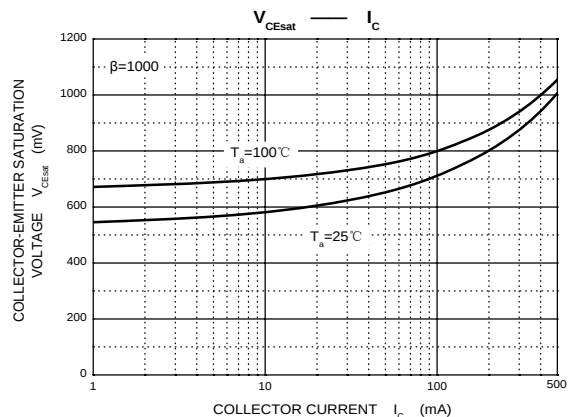
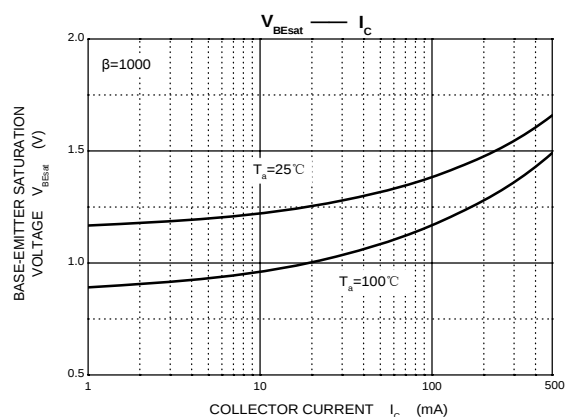
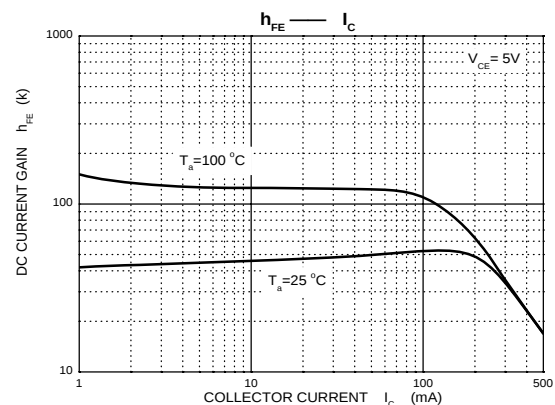
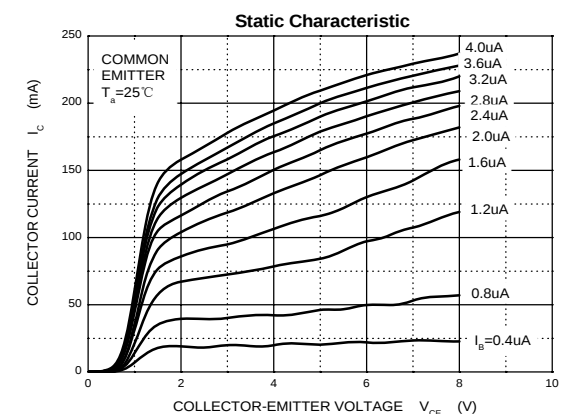
Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	80	V
Collector-base voltage	V_{CBO}	80	
Emitter-base voltage	V_{EBO}	12	
Collector current	I_C	500	mA
Collector Power Dissipation	P_C	200	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$
Junction temperature	T_j	150	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-55 +150	

Electrical Characteristics at ($T_A= 25^{\circ}\text{C}$, unless otherwise specified)

Parameter	Test Condition	Symbol	min	typ	max	Unit
Collector-base breakdown voltage	$I_C = 100\ \mu\text{A}$, $I_E = 0$	$V_{(BR)CBO}$	80	-	-	V
Collector-emitter breakdown voltage	$I_C = 100\ \mu\text{A}$, $I_{BE} = 0$	$V_{CEO(SUS)}$	80	-	-	V
Emitter-base breakdown voltage	$I_E = 10\ \mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	12	-	-	V
Collector cut-off current	$V_{CB}=60\text{V}$, $I_E=0$	I_{CBO}	-	-	0.1	μA
Collector cut-off current	$V_{CE} = 60\text{V}$, $V_{BE} = 0$	I_{CES}	-	-	0.5	μA
Emitter cut-off current	$V_{EB} = 10\text{V}$, $I_C = 0$	I_{EBO}	-	-	0.1	μA
DC current gain	$V_{CE}=5\text{V}$, $I_C=10\text{mA}$	$h_{FE(1)}^*$	10	-	-	K
	$V_{CE}=5\text{V}$, $I_C=100\text{mA}$	$h_{FE(2)}^*$	10	-	-	
Collector-emitter saturation voltage	$I_C = 10\text{mA}$, $I_B = 0.01\text{mA}$	$V_{CE(sat)1}^*$	-	-	1.2	V
	$I_C = 10\text{mA}$, $I_B = 0.1\text{mA}$	$V_{CE(sat)2}^*$	-	-	1.5	V
Base-emitter voltage ²	$V_{CE} = 5\text{V}$, $I_C = 100\text{mA}^*$	V_{BE}	-	-	2	V
Collector-base capacitance	$V_{CB} = 1\text{V}$, $f = 1\text{MHz}$	C_{Ob}	-	-	8	pF
Transition frequency	$I_C=10\text{mA}$, $V_{CE} = 5\text{V}$, $f = 100\text{MHz}$	f_T	125	-	-	MHz

*Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycles $\leq 2.0\%$.

Typical Characteristics



Ordering information

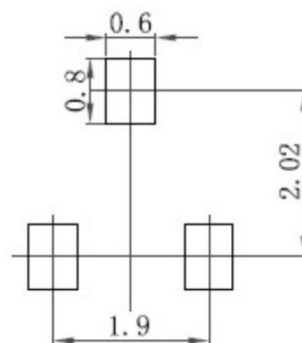
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
e	1.9		75	
e1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



Disclaimer

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