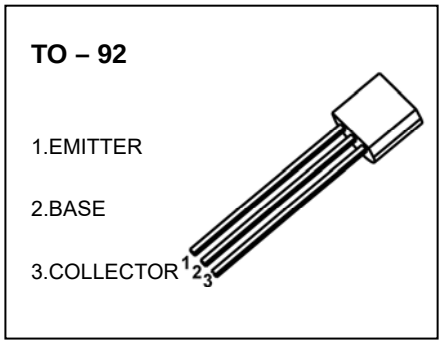
MPSA29

Darlington Amplifier Transistor(NPN)

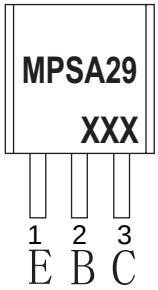
TO – 92



FEATURES

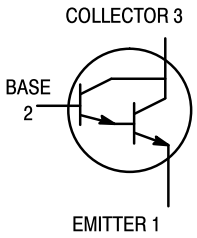
- Darlington Transistor

MARKING



MPSA29=Device code
XXX=Code
GXX=Green molding compound device
CXX=Normal molding compound device

Equivalent Circuit



ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
MPSA29	TO-92	Bulk	1000pcs/Bag
MPSA29-TA	TO-92	Tape	2000pcs/Box

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	100	V
V_{CES}	Collector-Emitter Voltage	100	V
V_{EBO}	Emitter-Base Voltage	12	V
I_C	Collector Current	0.5	A
P_C	Collector Power Dissipation	625	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	200	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

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ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 0.1mA,I_E=0	100			V
Collector-emitter breakdown voltage	$V_{(BR)CES}$	I_C=0.1mA,V_{BE}=0	100			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA,I_C=0	12			V
Collector cut-off current	I_{CBO}	V_{CB}=80V,I_E=0			0.1	μA
Collector cut-off current	I_{CES}	V_{CE}=80V,I_E=0			0.5	μA
Emitter cut-off current	I_{EBO}	V_{EB}=10V,I_C=0			0.1	μA
DC current gain	$h_{FE(1)}$*	V_{CE}=5V, I_C=10mA	10000			
	$h_{FE(2)}$*	V_{CE}=5V, I_C=100mA	10000			
Collector-emitter saturation voltage	$V_{CE(sat)(1)}$*	I_C=10mA,I_B=0.01mA			1.2	V
	$V_{CE(sat)(2)}$*	I_C=100mA,I_B=0.1mA			1.5	V
Base-emitter voltage	V_{BE}*	V_{CE}=5V,I_C=100mA			2.0	V
Transition frequency	f_T	V_{CE}=5V,I_C=10mA,f=100MHz	125			MHz
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0, f=1MHz			8	pF

*Pulse test: pulse width ≤300μs, duty cycle≤ 2.0%.

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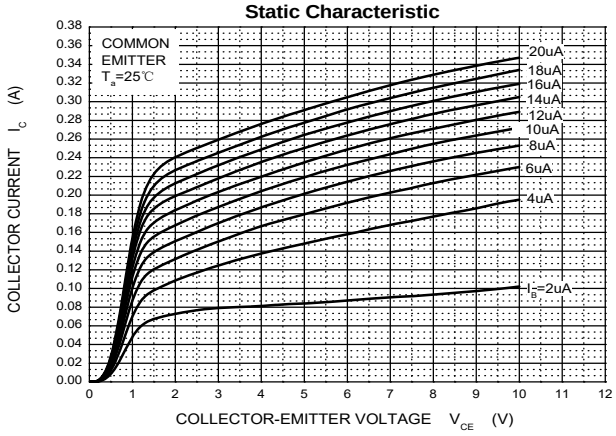
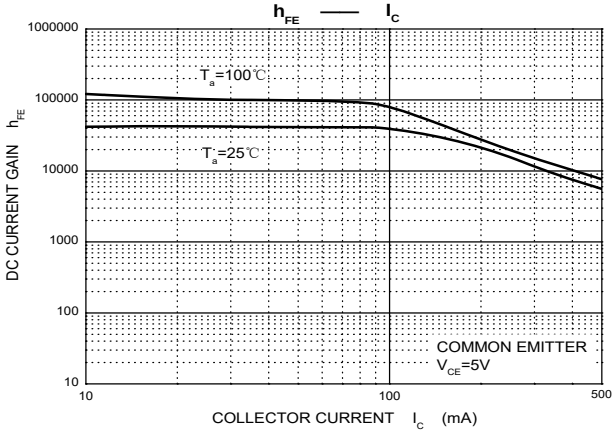
Typical Characteristics

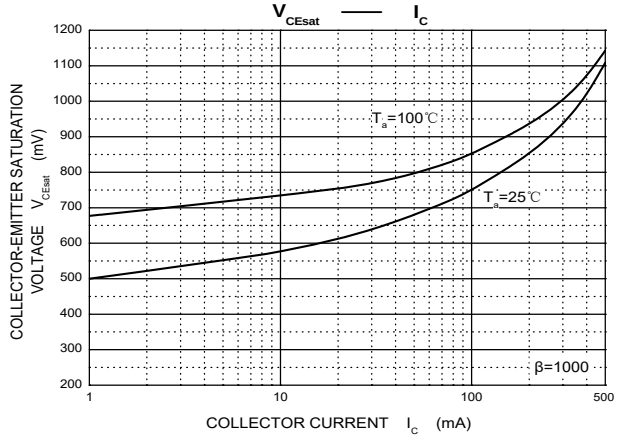
Static Characteristic



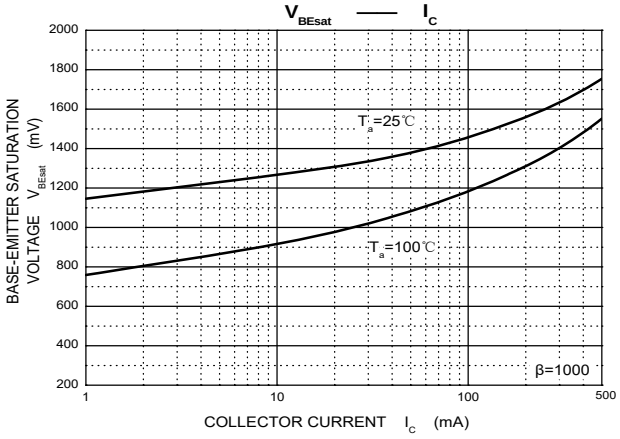
h_{FE} —— I_C



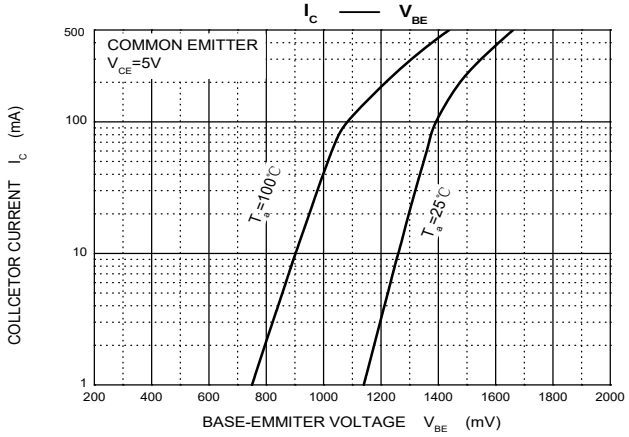
V_{CEsat} —— I_C



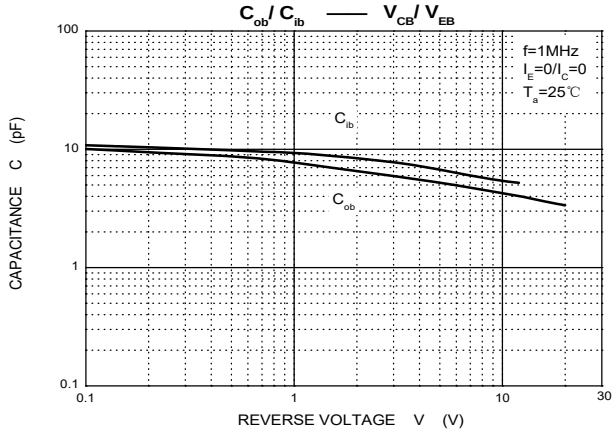
V_{BEsat} —— I_C



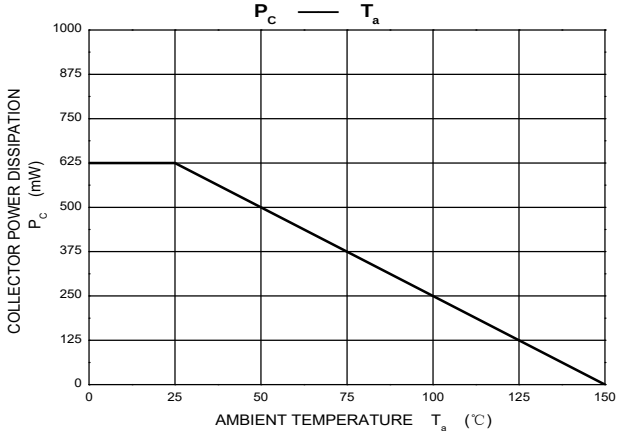
I_C —— V_{BE}



C_{ob} / C_{ib} —— V_{CB} / V_{EB}



P_C —— T_a



MPSA29

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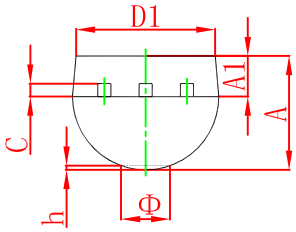
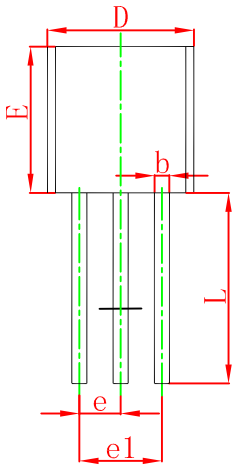
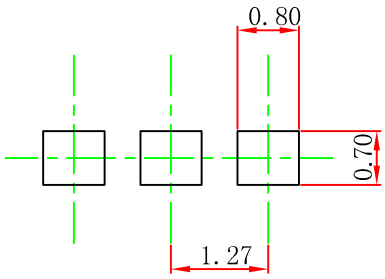
TO-92 Package Outline Dimensions





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

TO-92 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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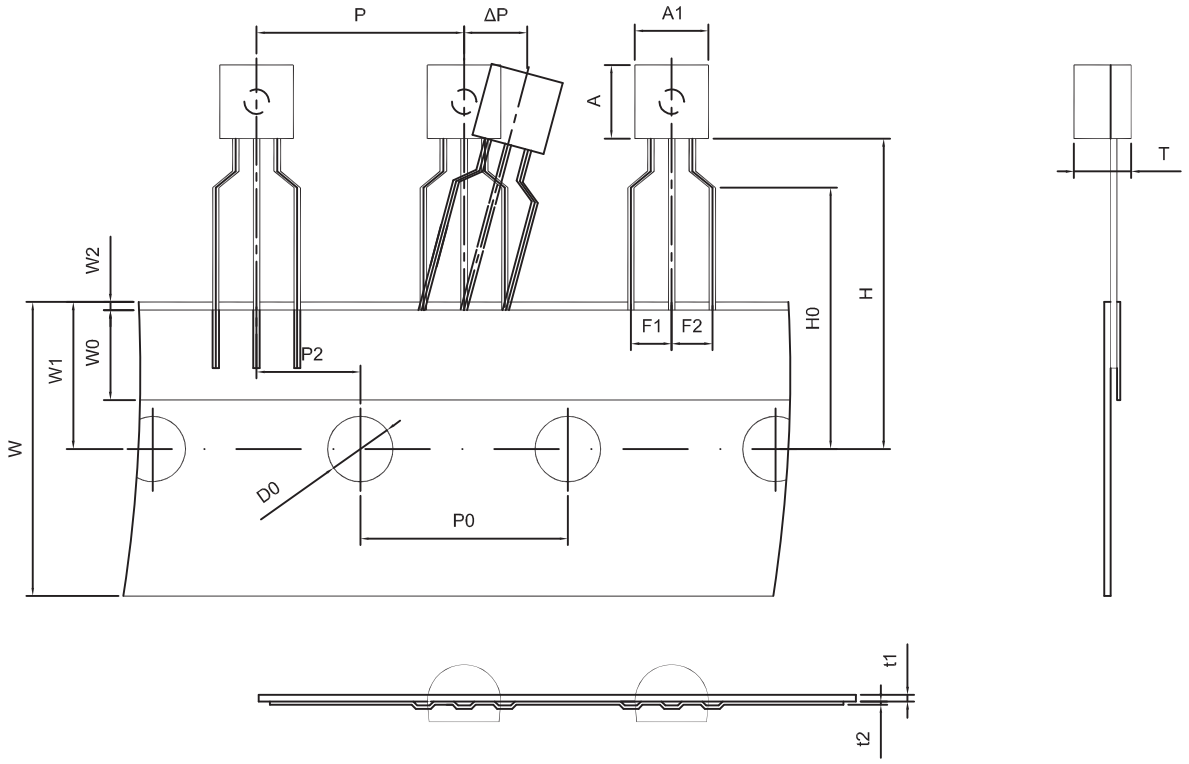
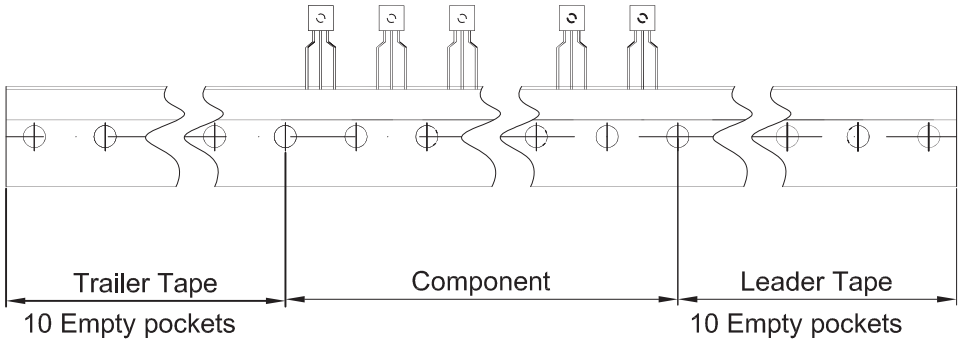
TO-92 Tape and Reel

TO-92 PACKAGE TAPEING DIMENSION



Dimiensions are in millimeter								
A1	A	T	P	P0	P2	F1	F2	W
4.5	4.5	3.5	12.7	12.7	6.35	2.5	2.5	18.0
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0	9.0	1.0 MAX.	19.0	16.0	4.0	0.4	0.2	0



Package	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92	2000 pcs	333×162×43	20,000 pcs	350×340×250