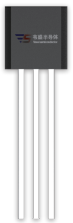
MPSA14 TRANSISTOR (NPN)



TO-92

1.EMITTER
2.COLLECTOR
3.BASE

FEATURES

- Darlington Transistor

ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
MPSA14	TO-92	Bulk	1000pcs/Bag
MPSA14-TA	TO-92	Tape	2000pcs/Box

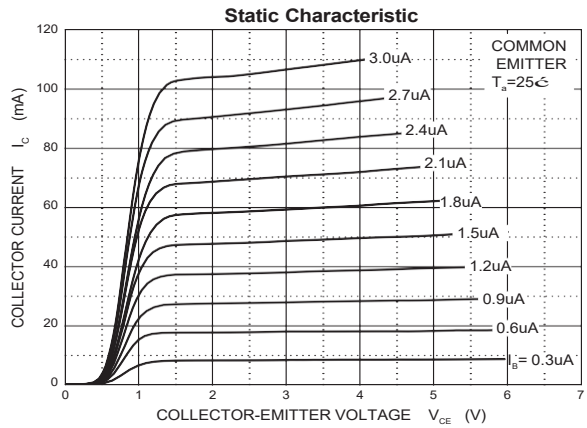
MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

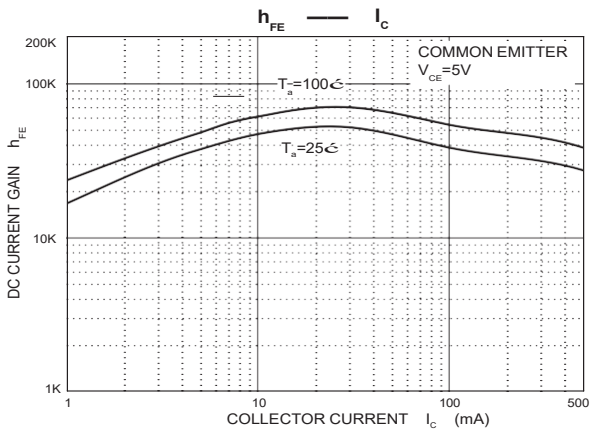
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Collector Current -Continuous	0.5	A
P_D	Collector Power Dissipation	625	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	200	℃ /W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

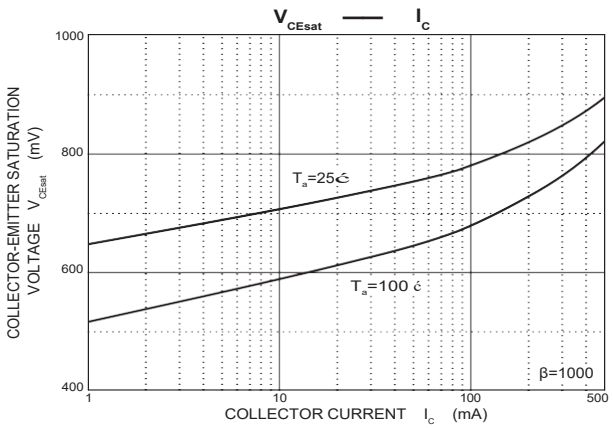
T_a=25℃ unless otherwise specified

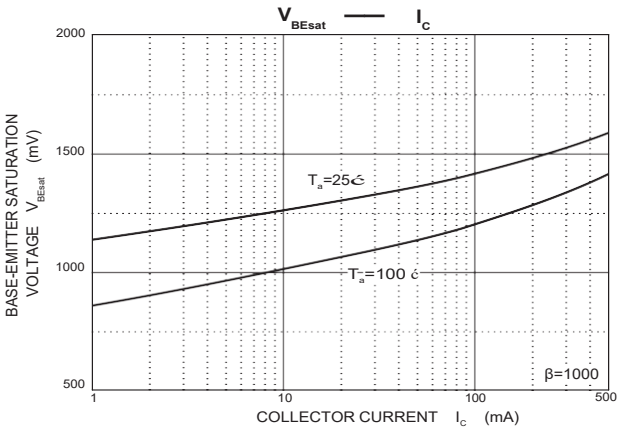
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 0.1mA,I_E=0	30			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA,I_B=0	30			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=0.1mA,I_C=0	10			V
Collector cut-off current	I_{CBO}	V_{CB}=30V,I_E=0			0.1	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	20000			
Collector-emitter saturation voltage	$V_{CE(sat)}$*	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

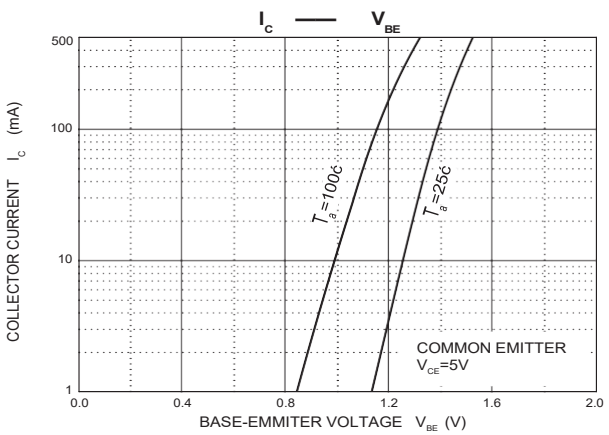
*Pulse test: pulse width ≤300μs, duty cycle≤ 2.0%.

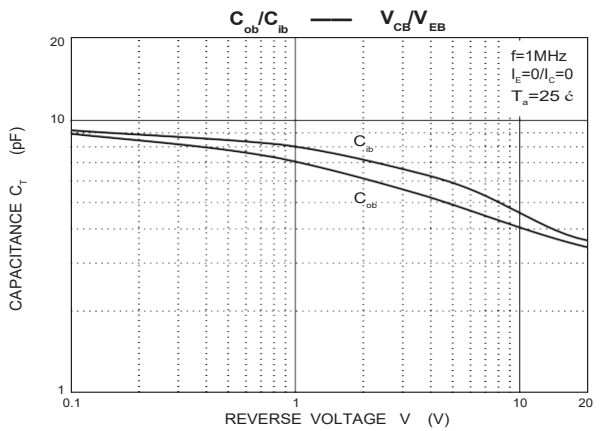

Static Characteristic
COMMON EMITTER
Ta=25℃
3.0uA
2.7uA
2.4uA
2.1uA
1.8uA
1.5uA
1.2uA
0.9uA
0.6uA
IB= 0.3uA
COLLECTOR CURRENT IC (mA)
COLLECTOR-EMITTER VOLTAGE VCE (V)

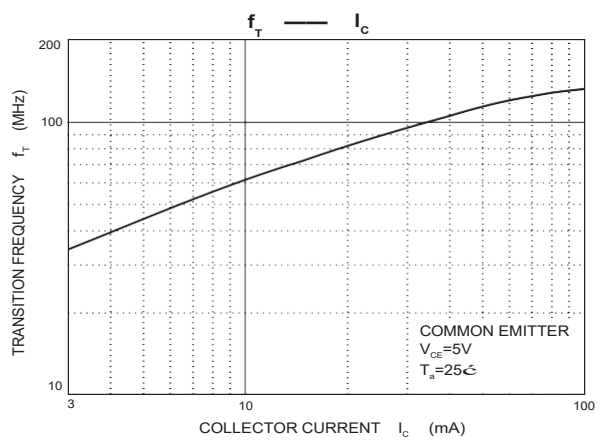

hFE —— IC
COMMON EMITTER
VCE=5V
Ta=100℃
Ta=25℃
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (mA)

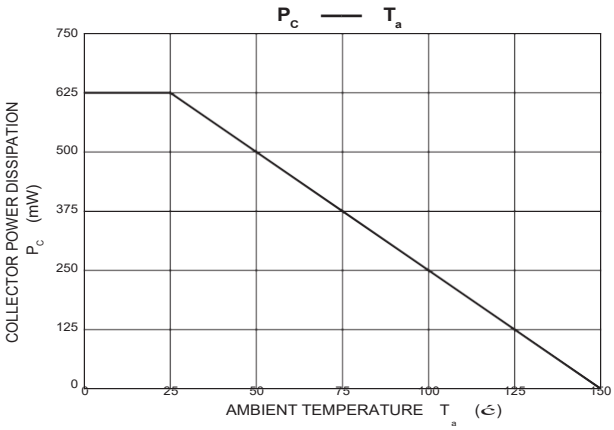

VCEsat —— IC
Ta=25℃
Ta=100 ℃
β=1000
COLLECTOR-EMITTER SATURATION VOLTAGE VCEsat (mV)
COLLECTOR CURRENT IC (mA)


VBEsat —— IC
Ta=25℃
Ta=100 ℃
β=1000
BASE-EMITTER SATURATION VOLTAGE VBEsat (mV)
COLLECTOR CURRENT IC (mA)


IC —— VBE
Ta=100℃
Ta=25℃
COMMON EMITTER
VCE=5V
COLLECTOR CURRENT IC (mA)
BASE-EMMITER VOLTAGE VBE (V)


Cob/Cib —— VCB/VEB
f=1MHz
IE=0/IC=0
Ta=25 ℃
Cib
Cob
CAPACITANCE Cr (pF)
REVERSE VOLTAGE V (V)


fT —— IC
COMMON EMITTER
VCE=5V
Ta=25℃
TRANSITION FREQUENCY fT (MHz)
COLLECTOR CURRENT IC (mA)


PC —— Ta
COLLECTOR POWER DISSIPATION PC (mW)
AMBIENT TEMPERATURE Ta (℃)