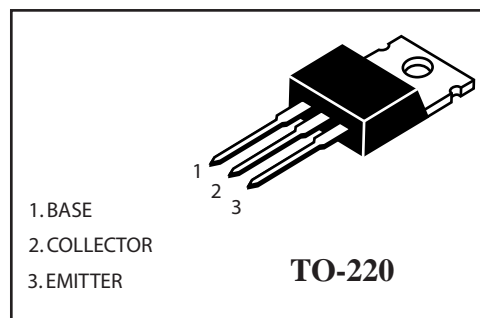


Plastic-Encapsulate Power Transistors

 **Lead(Pb)-Free**


ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	60	V _{dc}
Collector-Base Voltage	V _{CBO}	70	V _{dc}
Emitter-Base Voltage	V _{EBO}	5.0	V _{dc}
Collector Current (DC)	I _{C(DC)}	10	A _{dc}
Total Device Dissipation T _C =25 °C Derate above 25 °C	P _D	75 0.6	W W/°C
Operating and Storage Junction Temperature Range	T _j , T _{stg}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage (I _C = 200 mA _{dc} , I _B =0)	V _{(BR)CEO}	60	-	V _{dc}
Collector-Base Breakdown Voltage (I _C = 1.0 mA _{dc} , I _E =0)	V _{(BR)CBO}	70	-	V _{dc}
Emitter-Base Breakdown Voltage (I _E = 1.0 mA _{dc} , I _C =0)	V _{(BR)EBO}	5.0	-	V _{dc}
Collector Cutoff Current (V _{CB} = 70 V _{dc} , I _E =0)	I _{CBO}	-	1.0	nA _{dc}
Emitter Cutoff Current (V _{EB} = 5.0V _{dc} , I _C =0)	I _{EBO}	-	5.0	nA _{dc}

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

Characteristics	Symbol	Min	TYP	Max	Unit
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ON CHARACTERISTICS

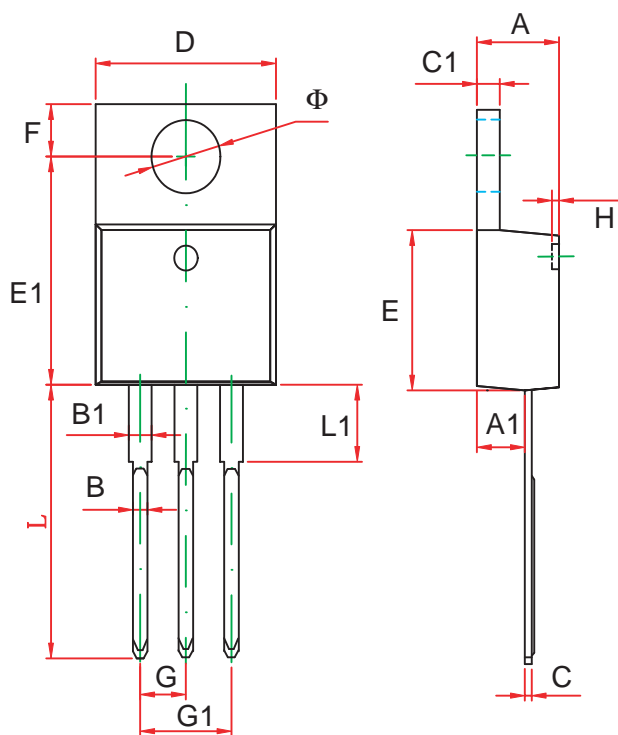
DC Current Gain (1) ($I_C=4\text{ Adc}, V_{CE}=4\text{ Vdc}$) ($I_C=10\text{ Adc}, V_{CE}=4\text{ Vdc}$)	$h_{FE}(1)$	20	-	100	-
	$h_{FE}(2)$	5	-	-	-
Collector-Emitter Saturation Voltage (1) ($I_C=4\text{ Adc}, I_B=400\text{ mAdc}$) ($I_C=10\text{ Adc}, I_B=3.3\text{ Adc}$)	$V_{CE(sat)}$	- -	- -	1.1 8	Vdc
Base-Emitter On Voltage (1) ($I_C=4\text{ Adc}, V_{CE}=4\text{ Vdc}$)	$V_{BE(ON)}$	-	-	1.8	Vdc
Current-Gain-Bandwidth Product ($I_C=500\text{ mAdc}, V_{CE}=10\text{ Vdc}$)	f_T	-	2	-	MHz

Note:

1. Pulse Test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

TO-220 Outline Dimensions

unit:mm



TO-220		
Dim	Min	Max
A	4.47	4.67
A1	2.52	2.82
B	0.71	0.91
B1	1.17	1.37
C	0.31	0.53
C1	1.17	1.37
D	10.01	10.31
E	8.50	8.90
E1	12.06	12.446
G	2.54 TYP	
G1	4.98	5.18
F	2.59	2.89
H	0.00	0.30
L	13.4	13.8
L1	3.56	3.96
Φ	3.73	3.93