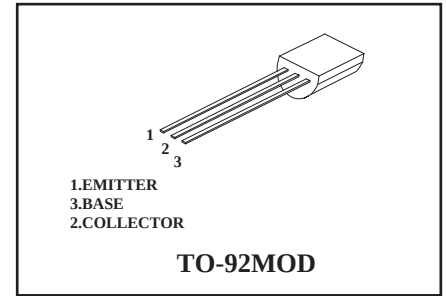


NPN General Purpose Transistors

 Lead(Pb)-Free



ELECTRICAL CHARACTERISTICS ($T_{amb}=25$ unless otherwise specified)

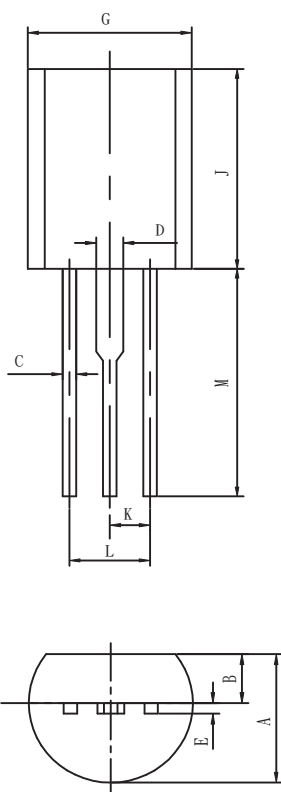
Parameter		Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage		$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	50			V
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	50			V
Emitter-base breakdown voltage		$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	5			V
Collector cut-off current		I_{CBO}	$V_{CB}=50V, I_E=0$			1	μA
Emitter cut-off current		I_{EBO}	$V_{EB}=5V, I_C=0$			1	μA
DC current gain		$h_{FE(1)}$	$V_{CE}=2V, I_C=500mA$	70		240	
		$h_{FE(2)}$	$V_{CE}=2V, I_C=1.5A$	40			
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C=1A, I_B=0.05A$			0.5	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C=1A, I_B=0.05A$			1.2	V
Transition frequency		f_T	$V_{CE}=2V, I_C=0.5A$		100		MHz
Collector output capacitance		C_{ob}	$V_{CB}=10V, I_E=0, f=1MHz$		30		pF
Switch time	Tune on Time	t_{on}	$V_{CC}=30V, I_C=1A,$ $I_{B1}=-I_{B2}=0.05A$		0.1		μs
	Storage Time	t_{stg}			1.0		
	Fall Time	t_f			0.1		

CLASSIFICATION OF $h_{FE(1)}$

Rank	0	Y
Range	70-140	120-240

TO-92MOD Outline Dimensions

unit:mm



TO-92MOD		
Dim	Min	Max
A	4.70	5.10
B	1.73	2.03
C	0.40	0.60
D	0.90	1.10
E	0.40	0.50
G	5.80	6.20
J	8.40	8.80
K	1.50Typ	
L	2.90	3.10
M	12.20	13.45