

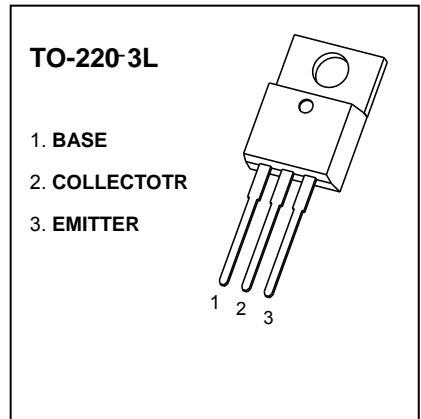


**TO-220-3L Plastic-Encapsulate Transistors**

**KTD2058** TRANSISTOR (NPN)

**FEATURES**

- Low Collector Saturation Voltage :  $V_{CE(SAT)} = 1.0V(MAX)$

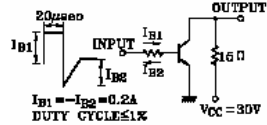


**MAXIMUM RATINGS (Ta=25°C unless otherwise noted)**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current -Continuous	3	A
$P_C$	Collector Power Dissipation	2	W
$T_j$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature Range	-55-150	°C

**ELECTRICAL CHARACTERISTICS(Ta=25°C unless otherwise specified)**

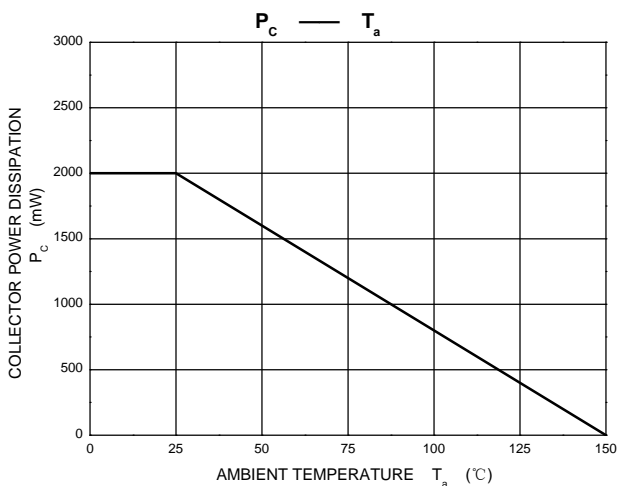
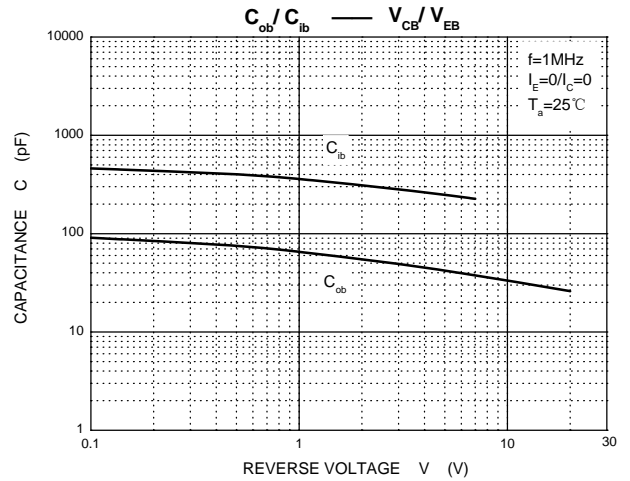
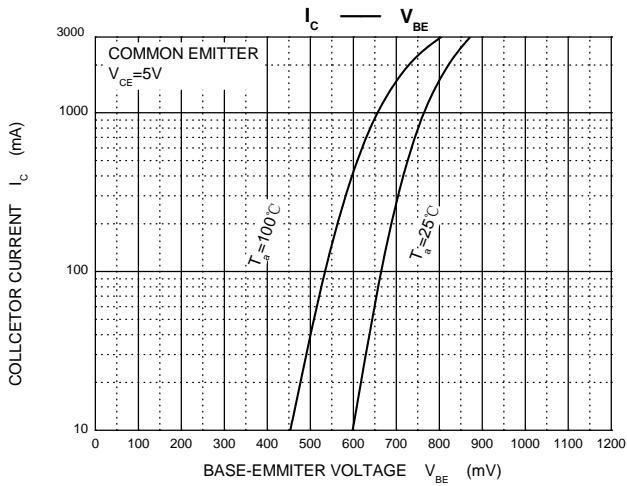
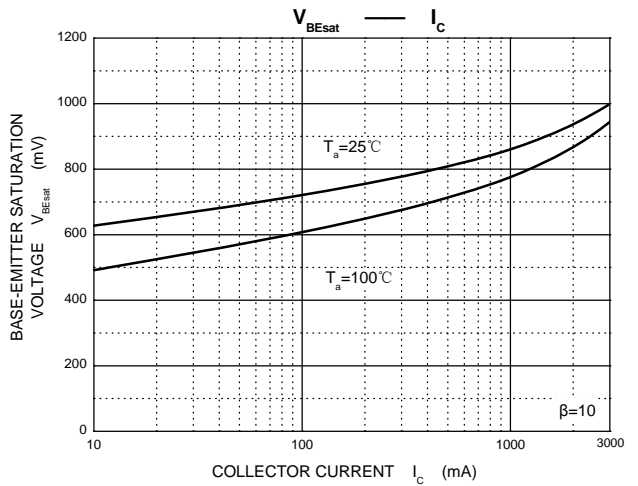
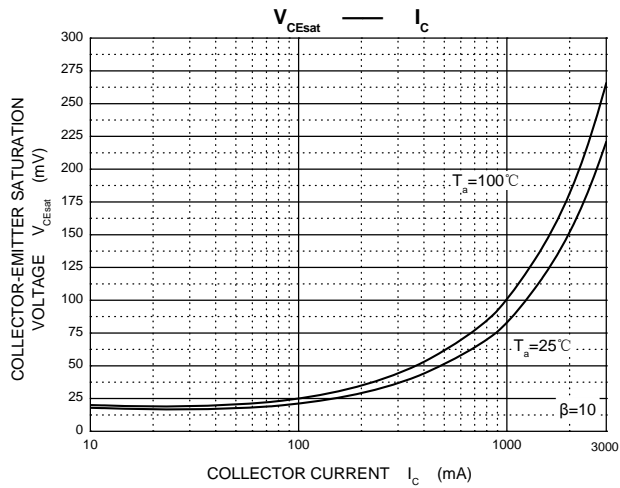
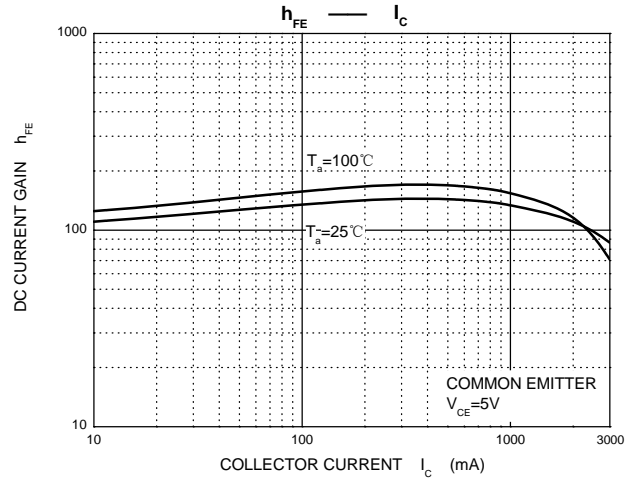
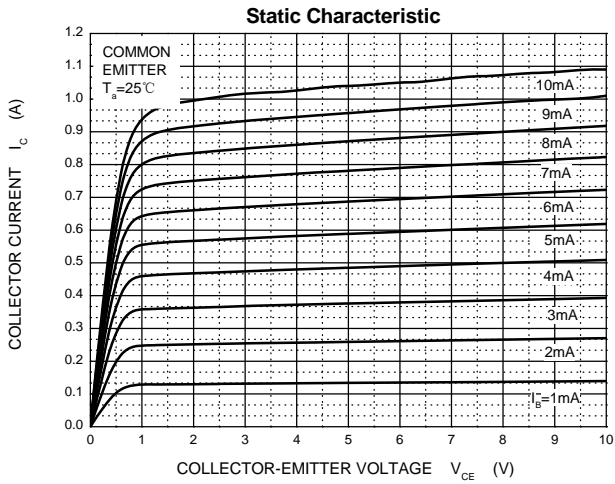
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=50mA, I_B=0$	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	7			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=60V, I_E=0$			100	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=7V, I_C=0$			100	$\mu A$
DC current gain	$h_{FE}$	$V_{CE}=5V, I_C=0.5A$	60		200	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=2A, I_B=0.2A$			1	V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE}=5V, I_C=0.5A$			1	V
Transition frequency	$f_T$	$V_{CE}=5V, I_C=0.5A$		3		MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=1MHz$		35		pF
Switching time	Turn-on Time	$t_{on}$		0.65		us
	Storage Time	$t_{stg}$		1.3		
	Fall Time	$t_f$		0.65		



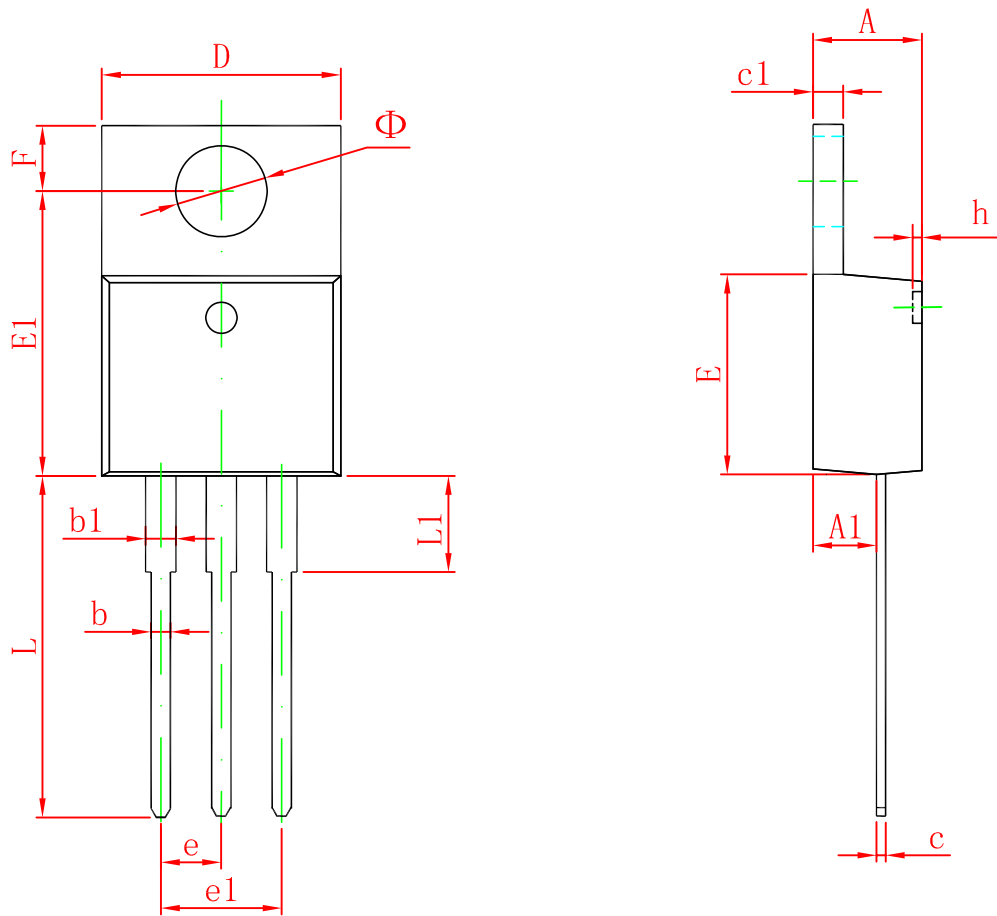
**CLASSIFICATION OF  $h_{FE}$**

Rank	O	Y
Range	60-120	100-200

# Typical Characteristics



# TO-220-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
$\Phi$	3.735	3.935	0.147	0.155