KSD1408 TRANSISTOR (NPN)

TO-220F

1.BASE
2.COLLECTOR
3.EMITTER

FEATURES

- Low Frequency Amplifier
- Medium Speed Switching

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	80	V
V_{CEO}	Collector-Emitter Voltage	80	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	4	A
P_C	Collector Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	62.5	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

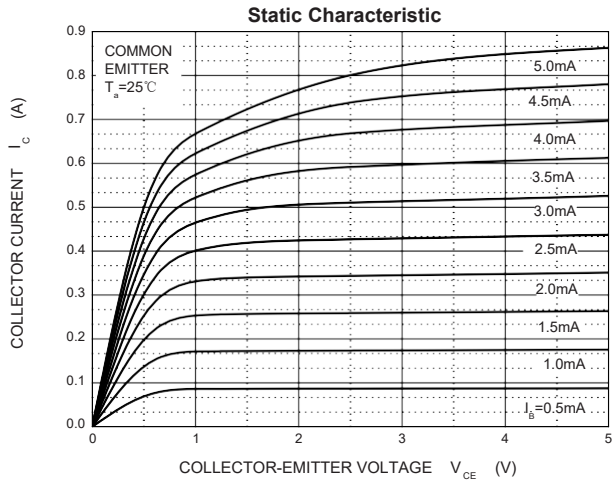
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

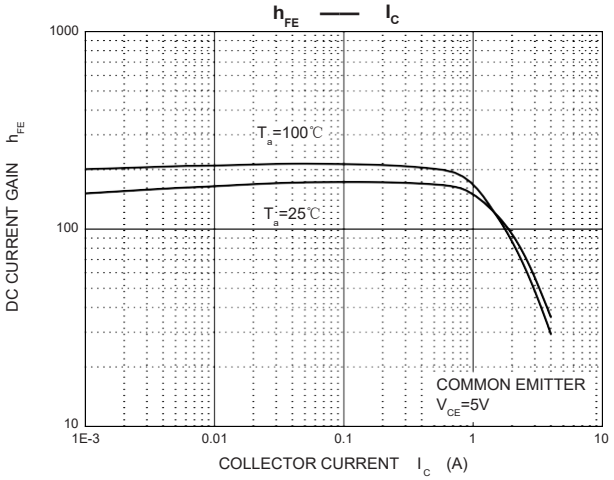
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA,I_E=0	80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$*	I_C=50mA,I_B=0	80			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=100μA,I_C=0	5			V
Collector cut-off current	I_{CBO}	V_{CB}=80V,I_E=0			30	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5V,I_C=0			100	μA
DC current gain	$h_{FE(1)}$	V_{CE}=5V, I_C=0.5A	40		240	
	$h_{FE(2)}$	V_{CE}=5V, I_C=3A	15			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=3A,I_B=0.3A			1.5	V
Base-emitter voltage	V_{BE}	V_{CE}=5V, I_C=3A			1.5	V
Transition frequency	f_T	V_{CE}=5V,I_C=0.5A		8		MHz
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0, f=1MHz		90		pF

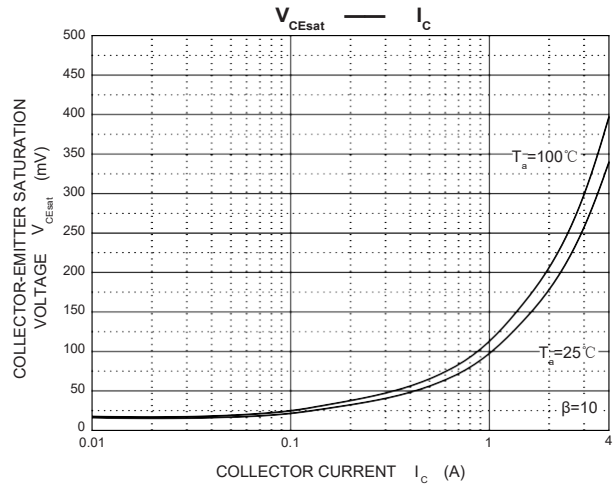
*Pulse test: pulse width ≤300μs, duty cycle≤ 2.0%.

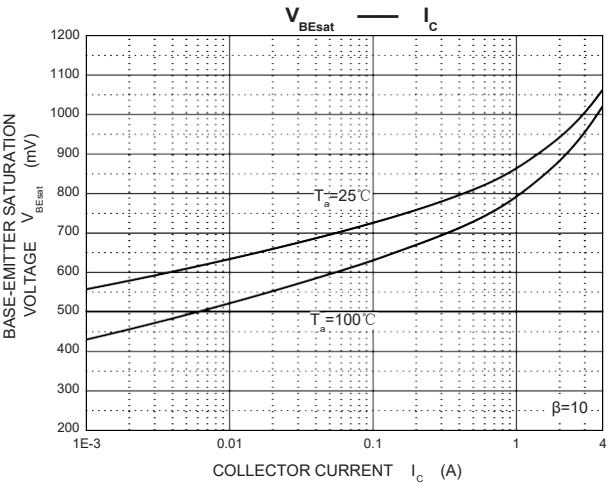
CLASSIFICATION OF $h_{FE(1)}$

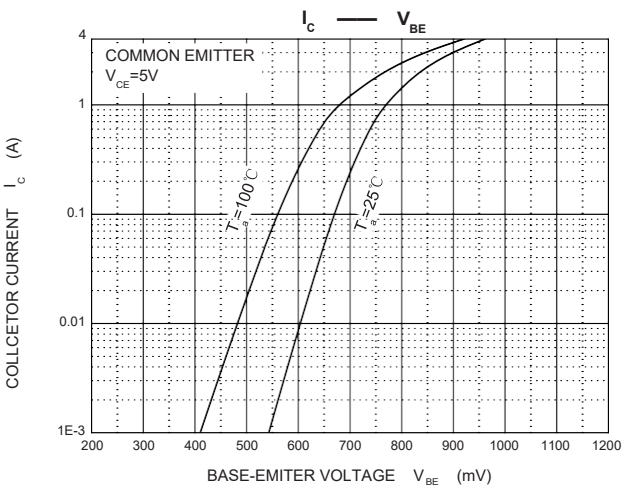
RANK	R	O	Y
RANGE	40-80	70-140	120-240

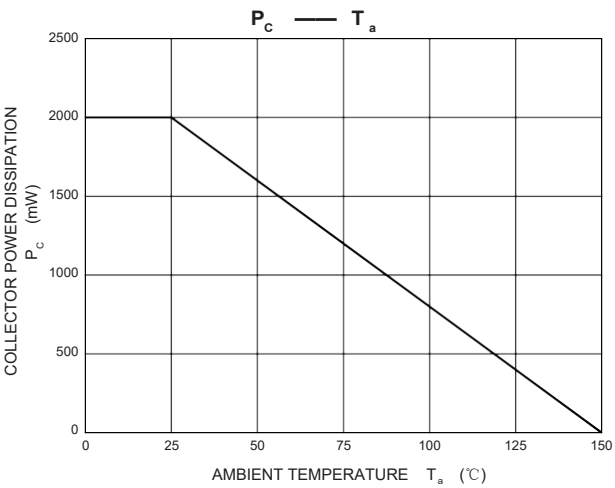

Static Characteristic
COMMON EMITTER
Ta=25℃
5.0mA
4.5mA
4.0mA
3.5mA
3.0mA
2.5mA
2.0mA
1.5mA
1.0mA
IB=0.5mA
COLLECTOR CURRENT IC (A)
COLLECTOR-EMITTER VOLTAGE VCE (V)


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


VCEsat — IC
Ta=100℃
Ta=25℃
β=10
COLLECTOR-EMITTER SATURATION VOLTAGE VCEsat (mV)
COLLECTOR CURRENT IC (A)


VBEsat — IC
Ta=25℃
Ta=100℃
β=10
BASE-EMITTER SATURATION VOLTAGE VBEsat (mV)
COLLECTOR CURRENT IC (A)


IC — VBE
COMMON EMITTER
VCE=5V
Ta=100℃
Ta=25℃
COLLCETOR CURRENT IC (A)
BASE-EMITER VOLTAGE VBE (mV)


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