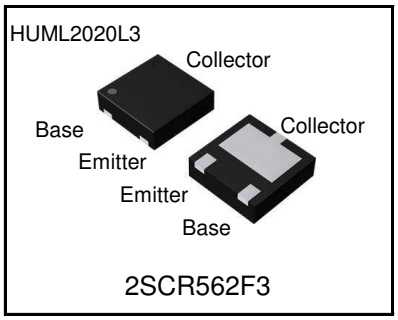
2SCR562F3

NPN 6A 30V Middle Power Transistor Datasheet

Parameter	Value
V_{CEO}	30V
I_C	6A

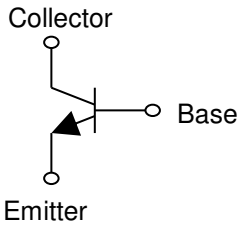
●**Outline**



●**Features**

1) Suitable for Middle Power Driver
2) Low $V_{CE(sat)}$
   $V_{CE(sat)}$= 180mV(Max.) (I_C/I_B=3A/60mA)
3) High collector current
   I_C = 6A (max) , I_{CP} = 7A (max)
4) Leadless small SMD package "HUML2020L3"
   Excellent thermal and electrical conductivity
5) Lead Free/RoHS Compliant.

●**Inner circuit**



●**Applications**

Load switch, Battery-driven devices, Power management
Charging circuits, Power switches (e.g. motors, fans)

●**Packaging specifications**

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
2SCR562F3	HUML2020L3	2020	TR	180	8	3,000	NT

●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Values	Unit
Collector-base voltage		V_{CBO}	30	V
Collector-emitter voltage		V_{CEO}	30	V
Emitter-base voltage		V_{EBO}	6	V
Collector current	DC	I_C	6.0	A
	Pulsed	I_{CP} *1	7.0	A
Base Current		I_B	0.6	A
Power dissipation		P_D *2	1.0	W
		P_D *3	2.1	W
Junction temperature		T_j	150	°C
Range of storage temperature		T_{stg}	−55 to +150	°C

*1 Pw=1ms , single pulse
*2 Mounted on an FR4 board (25.4×25.4×1.6mm , 645mm^2 Cu PAD)
*3 Pw=10s , Mounted on an FR4 board (25.4×25.4×1.6mm , 645mm^2 Cu PAD)

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	BV_{CEO}	I_C = 1mA	30	-	-	V
Collector-base breakdown voltage	BV_{CBO}	I_C = 100μA	30	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E = 100μA	6	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = 20V	-	-	0.5	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 4V	-	-	0.5	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 3A, I_B = 60mA	-	120	180	mV
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = 3A, I_B = 60mA	-	0.9	1.2	V
DC current gain	h_{FE}	V_{CE} = 2V, I_C = 500mA	200	-	500	-
Transition frequency	f_T	V_{CE} = 10V, I_E = −500mA f=100MHz	-	270	-	MHz
Output capacitance	C_{ob}	V_{CB} = 10V, I_E = 0A f = 1MHz	-	40	-	pF

●**Electrical characteristic curves**(Ta = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

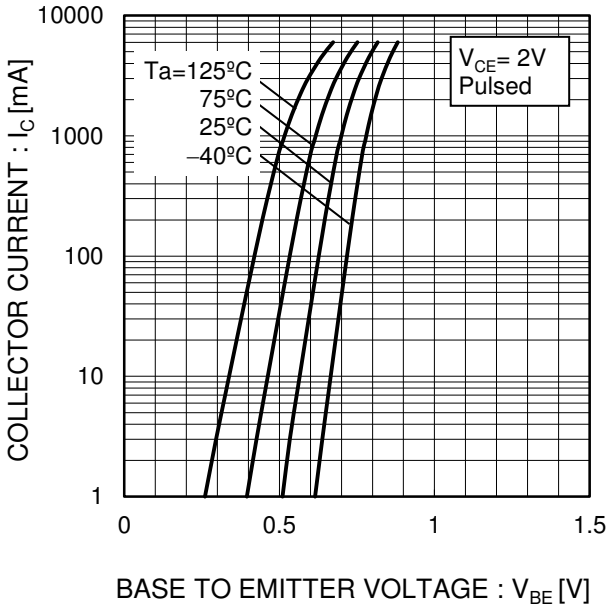


Fig.2 Typical Output Characteristics

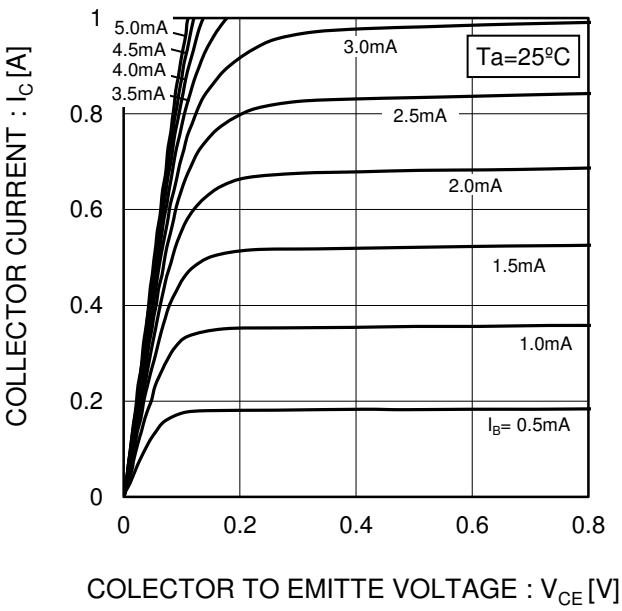


Fig.3 DC Current Gain vs. Collector Current(I)

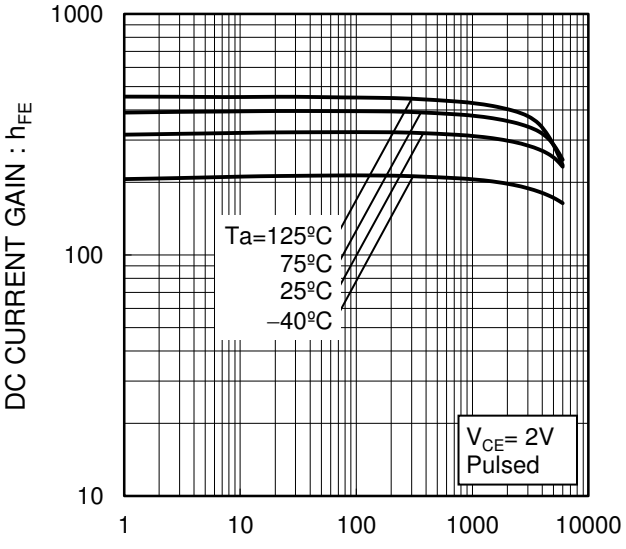
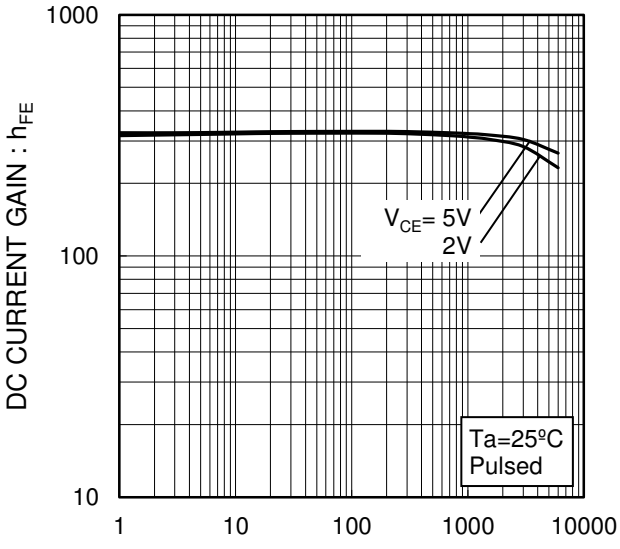


Fig.4 DC Current Gain vs. Collector Current(II)



●Electrical characteristic curves(Ta = 25°C)

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

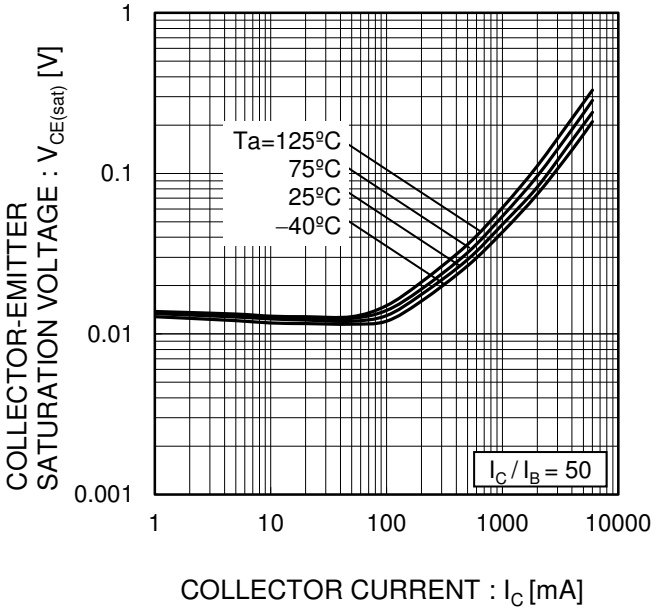


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

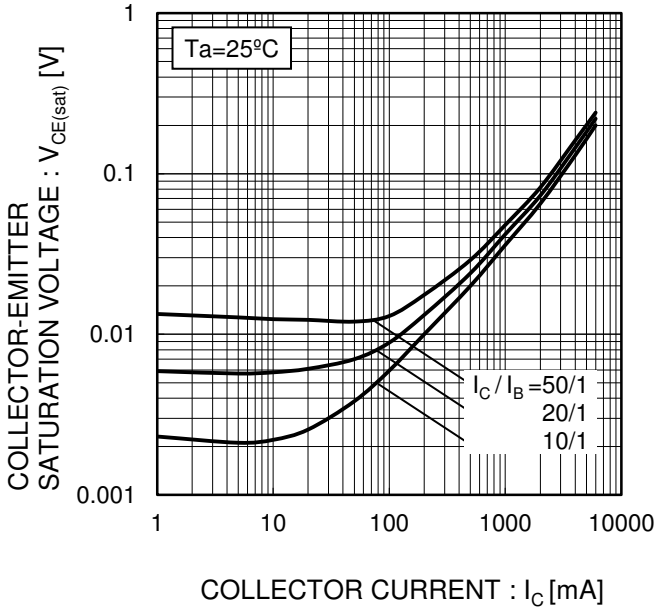


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

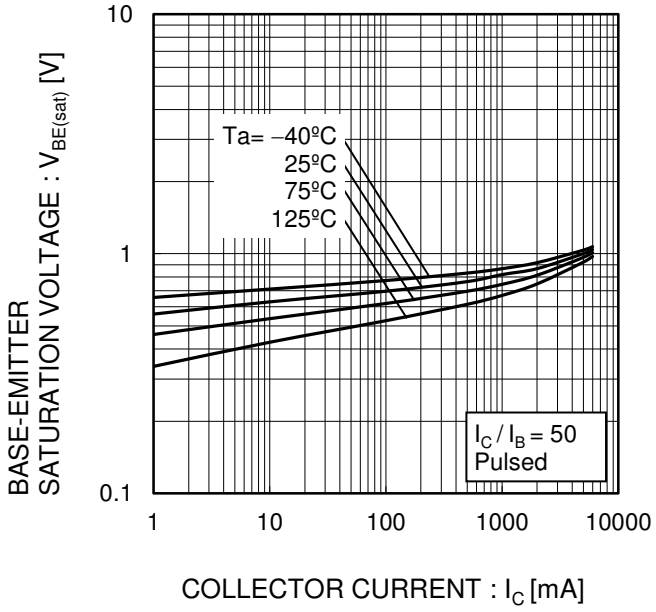
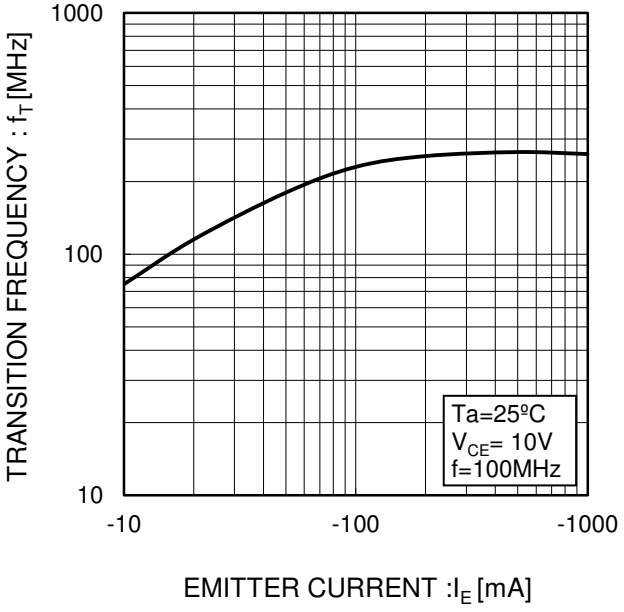


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves(Ta = 25°C)

Fig.9 Emitter input capacitance vs. Emitter-Base Voltage
Collector output capacitance vs. Collector-Base Voltage

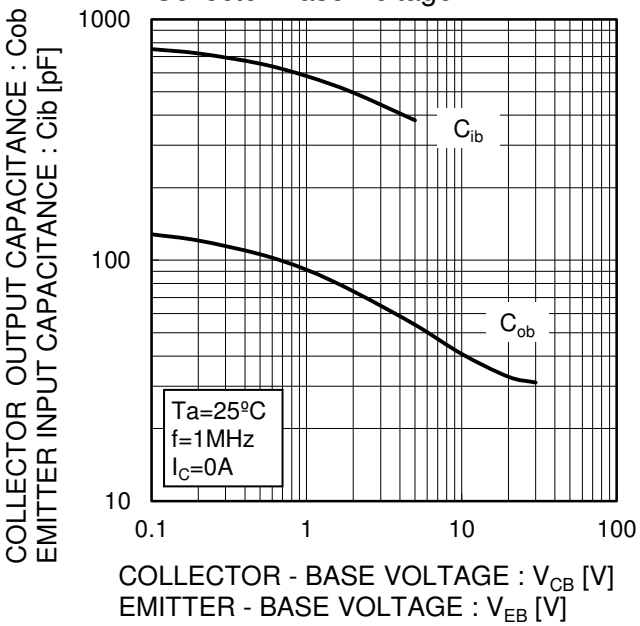
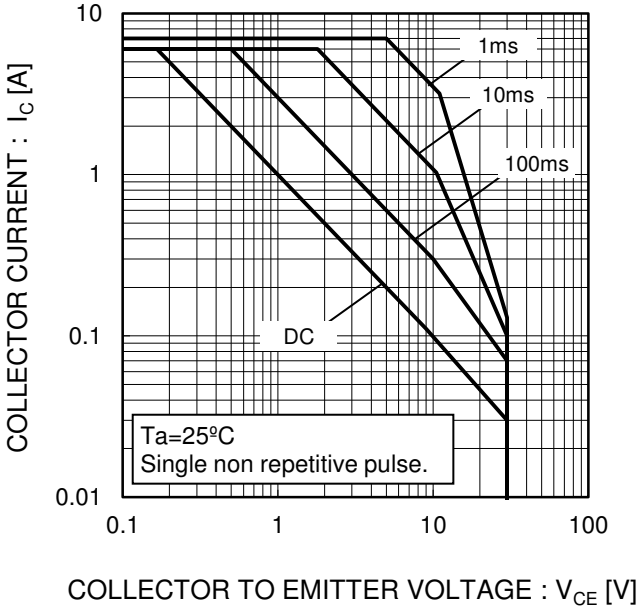
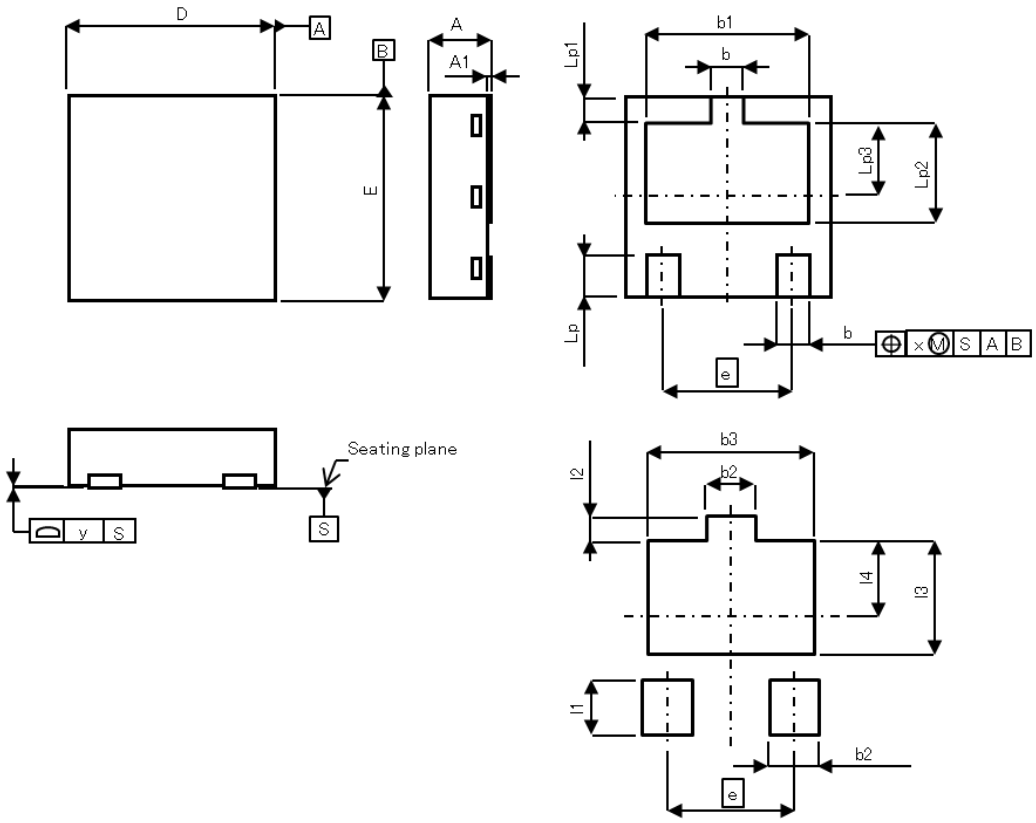


Fig.10 Safe Operating Area



●Dimensions (Unit : mm)

HUML2020L3



Pattern of terminal position areas
[Not a recommended pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.55	0.65	0.022	0.026
A1	0.00	0.05	0.000	0.002
b	0.25	0.35	0.010	0.014
b1	1.40	1.60	0.055	0.063
D	1.90	2.10	0.075	0.083
E	1.90	2.10	0.075	0.083
e	1.30		0.051	
Lp	0.35	0.45	0.014	0.018
Lp1	0.25 REF		0.01 REF	
Lp2	0.90	1.10	0.035	0.043
Lp3	0.70	0.80	0.028	0.031
x	-	0.10	-	0.004
y	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.45	-	0.018
b3	-	1.60	-	0.063
l1	-	0.55	-	0.022
l2	0.25 REF		0.01 REF	
l3	-	1.10	-	0.043
l4	-	0.80	-	0.031

Dimension in mm / inches

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