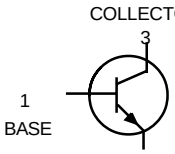
General Purpose Transistors

40V,2A Low VCE(sat) NPN Silicon

LBSS4240P3T1G
S-LBSS4240P3T1G

DFN2020-3



FEATURES

- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation
- We declare that the material of product compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

APPLICATIONS

- Supply line switching circuits
- Battery management applications
- DC/DC converter applications
- Strobe flash units
- Heavy duty battery powered equipment (motor and lamp drivers).

ORDERING INFORMATION

Device	Marking	Shipping
LBSS4240P3T1G S-LBSS4240P3T1G	ZE	3000/Tape & Reel

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	40	V
Collector–Base Voltage	V_{CBO}	40	V
Emitter–Base Voltage	V_{EBO}	5.0	V
Collector Current — Continuous	I_C	2	A
total power dissipation	P_D	0.5	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ~+150	°C

THERMAL CHARACTERISTICS

Symbol	Parameter	Conditions	Value	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air;note 1	250	°C/W
		in free air;note 2	125	°C/W

Notes:
1.Device mounted on a printed-circuit board,single sided copper,tinplated and standard footprint.
2.Device mounted on a printed-circuit board,single sided copper,tinplated and mounted pad for collector 1 cm^2

LBSS4240P3T1G,S-LBSS4240P3T1G

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	I_E = 0; V_{CB} = 30 V	–	100	nA
I_{EBO}	emitter-base cut-off current	I_C = 0; V_{EB} = 4 V	–	100	nA
h_{FE}	DC current gain	I_C = 100 mA; V_{CE} = 2 V	350	–	
		I_C = 500 mA; V_{CE} = 2 V	300	–	
		I_C = 1 A; V_{CE} = 2 V	300	–	
		I_C = 2 A; V_{CE} = 2 V	150	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = 100 mA; I_B = 1 mA	–	70	mV
		I_C = 500 mA; I_B = 50 mA	–	100	mV
		I_C = 750 mA; I_B = 15 mA	–	180	mV
		I_C = 1 A; I_B = 50 mA; note 1	–	180	mV
		I_C = 2 A; I_B = 200 mA; note 1	–	320	mV
V_{BEsat}	base-emitter saturation voltage	I_C = 2 A; I_B = 200 mA; note 1	–	1.1	V
V_{BEon}	base-emitter turn on voltage	I_C = 100 mA; V_{CE} = 2 V	–	0.75	V
C_c	collector capacitance	I_E = I_e = 0; V_{CB} = 10 V; f = 1 MHz	–	20	pF
f_T	transition frequency	I_C = 100 mA; V_{CE} = 10 V; f = 100 MHz	100	–	MHz

Note

1. Pulse test: $t_p \leq 300\ \mu s$; $\delta \leq 0.02$.

LBSS4240P3T1G,S-LBSS4240P3T1G

ELECTRICAL CHARACTERISTIC CURVES
(Ta = 25°C)

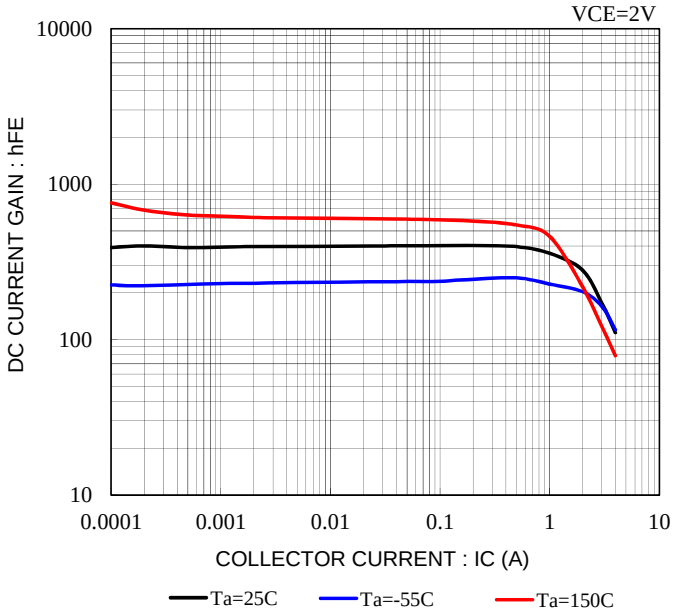


Fig.1 DC CURRENT GAIN VS.COLLECTOR CURRENT

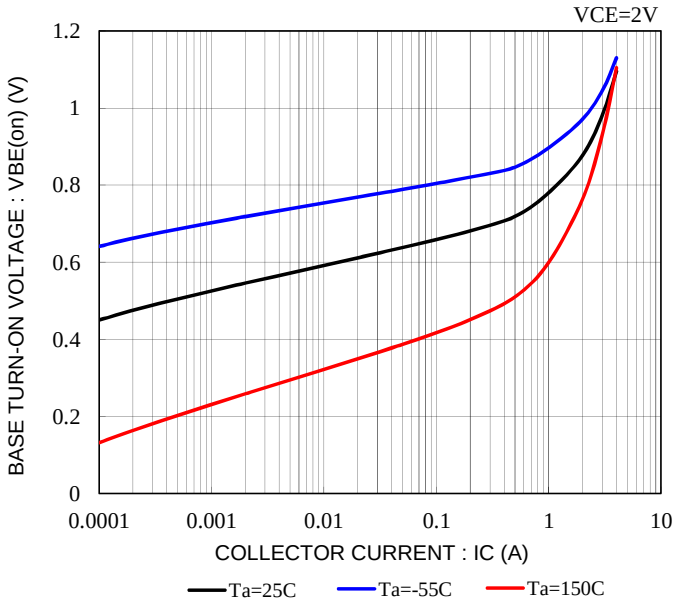


Fig.2 BASE-EMITTER TURN-ON VOLTAGE VS.COLLECTOR CURRENT

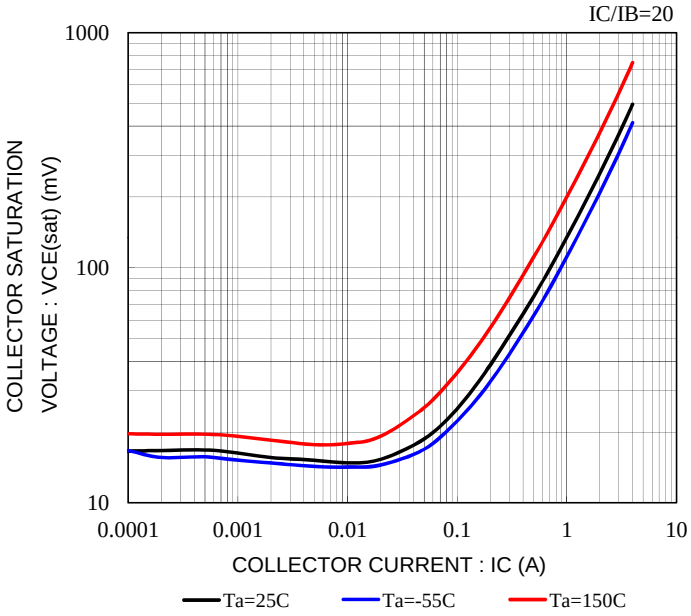


Fig.3 COLLECTOR-EMITTER SATURATION VOLTAGE VS.COLLECTOR CURRENT

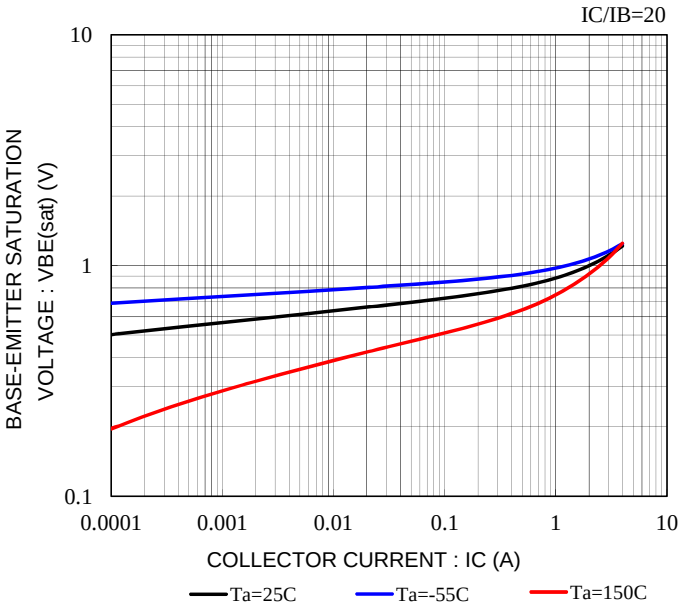


Fig.4 BASE-EMITTER SATURATION VOLTAGE VS.COLLECTOR CURRENT

LBSS4240P3T1G,S-LBSS4240P3T1G

ELECTRICAL CHARACTERISTIC CURVES
(Ta = 25°C)

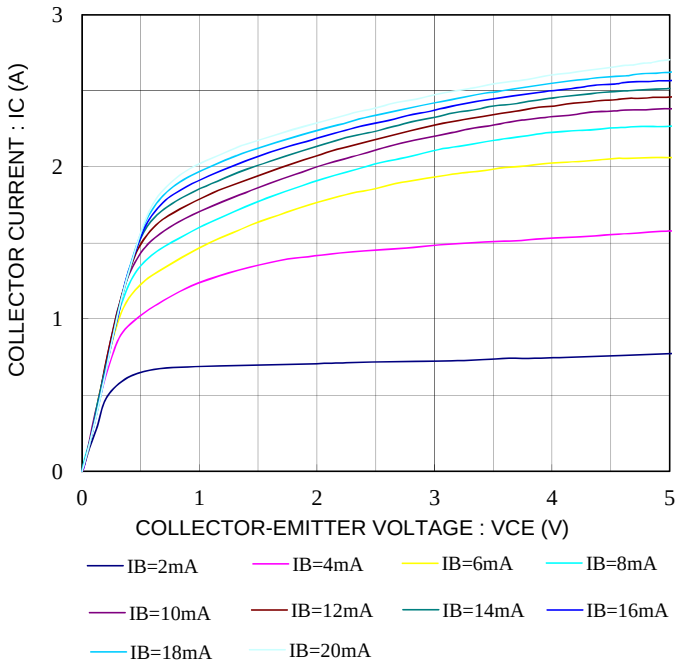


Fig.5 COLLECTOR CURRENT VS.COLLECTOR-EMITTER SATURATION VOLTAGE

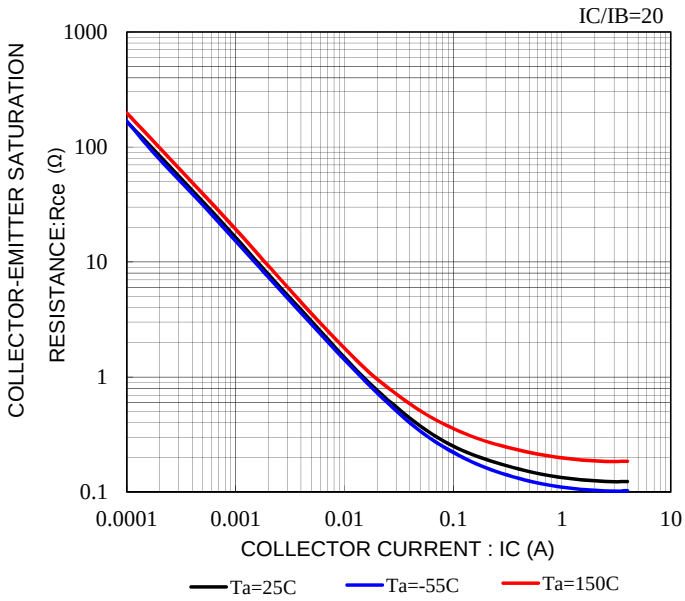
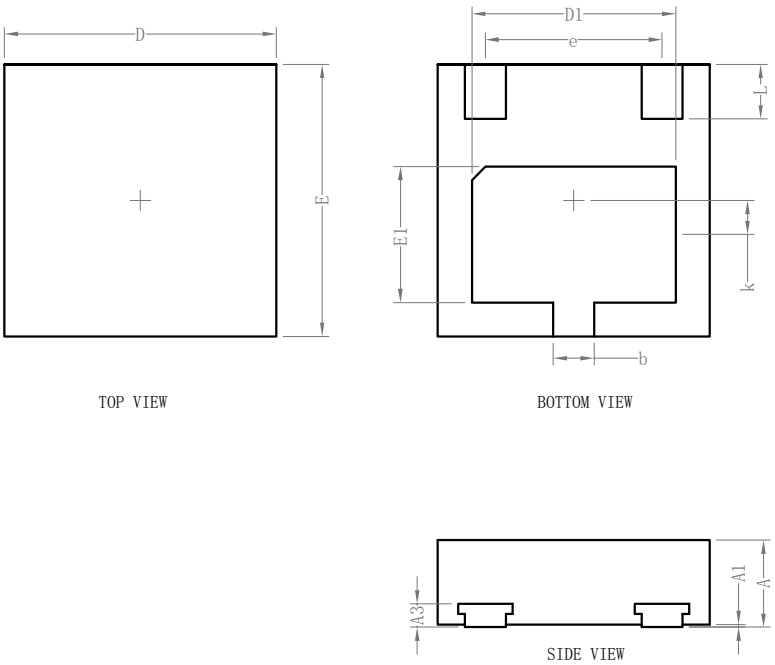


Fig.6 COLLECTOR-EMITTER SATURATION RESISTANCE VS.COLLECTOR CURRENT

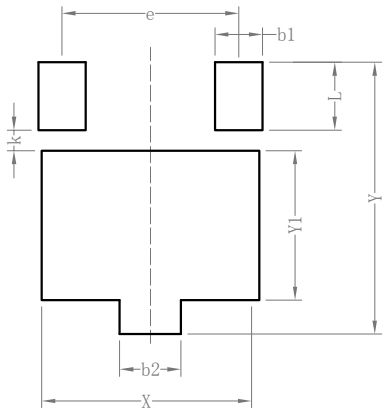
DFN2020-3

Package Outline Dimension



DFN2020-3			
Dim	Min.	Typ.	Max.
A	0.60	0.65	0.70
A1	0.00	0.02	0.05
A3	0.152REF.		
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D1	1.45	1.50	1.55
E1	0.95	1.00	1.05
b	0.25	0.30	0.35
e	1.30TYP.		
k	0.20	0.25	0.30
L	0.35	0.40	0.45
All Dimensions in mm			

Suggested Pad layout



DFN2020-3	
Dim	(mm)
X	1.60
Y	2.00
b1	0.35
b2	0.45
L	0.50
Y1	1.10
k	0.15
e	1.30