Ordering number : EN7920B

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SA2124 — PNP Epitaxial Planar Silicon Transistor

High-Current Switching Applications

Applicaitons

- Voltage regulators, relay drivers, lamp drivers, electrical equipment

Features

- Adoption of MBIT processes
- Large current capacity
- Low collector-to-emitter saturation voltage
- High-speed switching

Specifications

Absolute Maximum Ratings at Ta=25°C

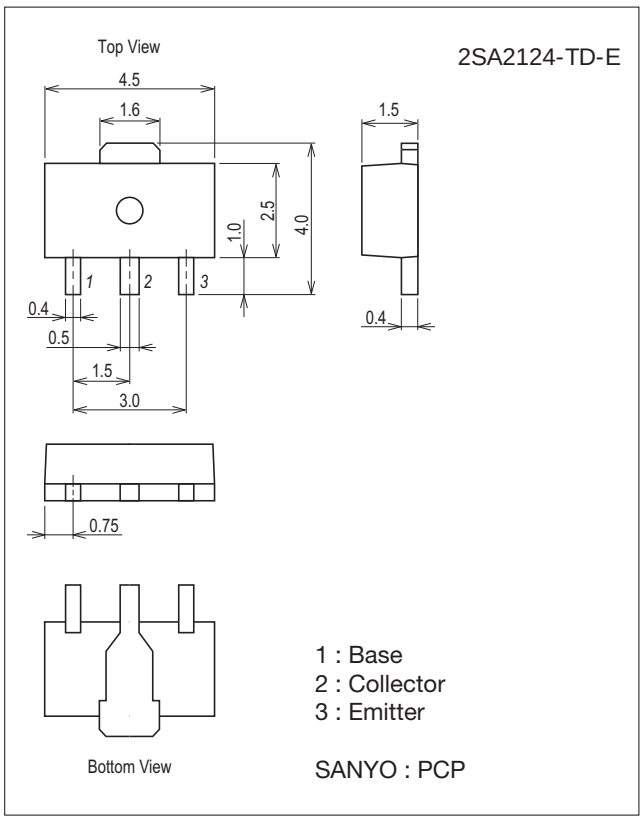
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		−30	V
Collector-to-Emitter Voltage	V_{CEO}		−30	V
Emitter-to-Base Voltage	V_{EBO}		−6	V
Collector Current	I_C		−2	A
Collector Current (Pulse)	I_{CP}		−5	A

Continued on next page.

Package Dimensions

unit : mm (typ)

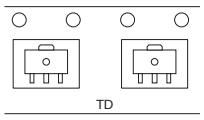
7007B-004



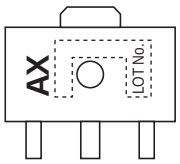
Product & Package Information

- Package : PCP
- JEITA, JEDEC : SC-62, SOT-89, TO-243
- Minimum Packing Quantity : 1,000 pcs./reel

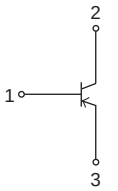
Packing Type: TD



Marking



Electrical Connection



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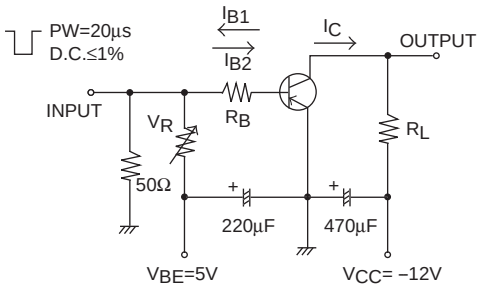
Parameter	Symbol	Conditions	Ratings	Unit
Base Current	I_B		−400	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (450mm^2×0.8mm)	1.3	W
		Tc=25°C	3.5	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=−30V, I_E=0A			−0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=−4V, I_C=0A			−0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=−2V, I_C=−100mA	200		560	
	$h_{FE}2$	V_{CE}=−2V, I_C=−1.5A	65			
Gain-Bandwidth Product	f_T	V_{CE}=−10V, I_C=−300mA		440		MHz
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=−1.5A, I_B=−75mA		−0.2	−0.4	V
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=−1.5A, I_B=−75mA		−0.95	−1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=−10μA, I_E=0A	−30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=−1mA, R_{BE}=∞	−30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=−10μA, I_C=0A	−6			V
Output Capacitance	Cob	V_{CB}=−10V, f=1MHz		17		pF
Turn-ON Time	t_{on}	See specified Test Circuit.		45		ns
Storage Time	t_{stg}			200		ns
Fall Time	t_f			23		ns

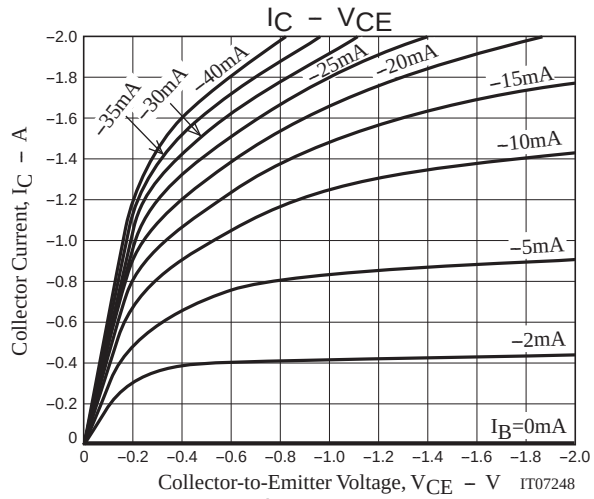
Switching Time Test Circuit

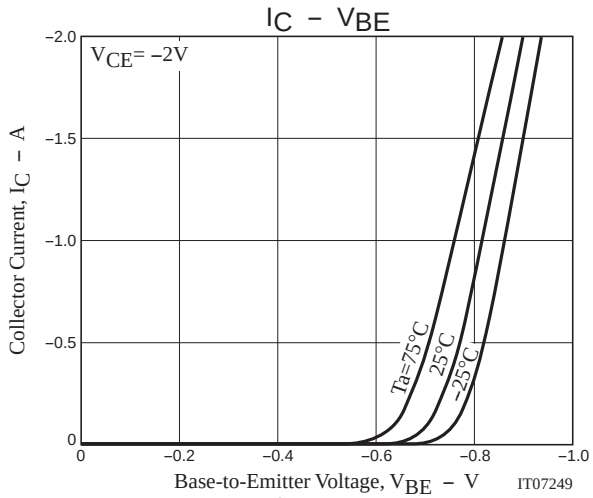


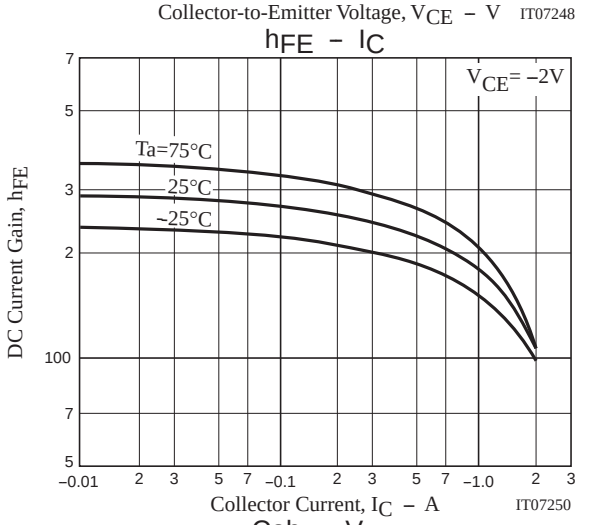
I_C=20I_{B1}= −20I_{B2}= −0.5A

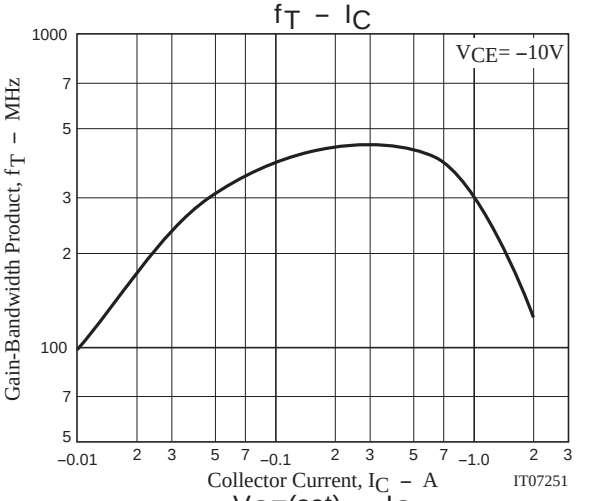
Ordering Information

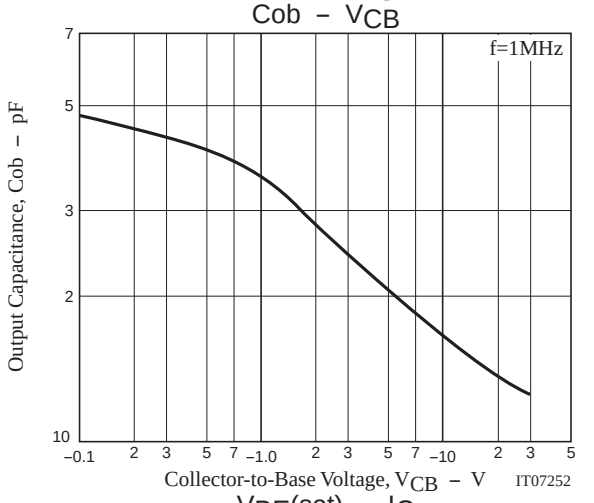
Device	Package	Shipping	memo
2SA2124-TD-E	PCP	1,000pcs./reel	Pb Free

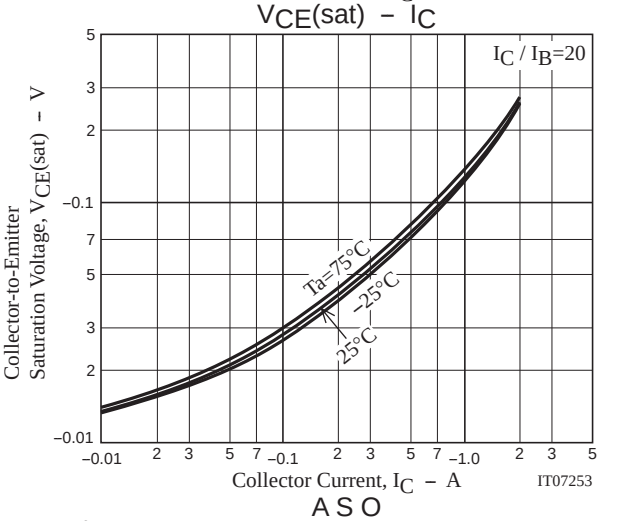

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT07248
–35mA
–30mA
–40mA
–25mA
–20mA
–15mA
–10mA
–5mA
–2mA
IB=0mA

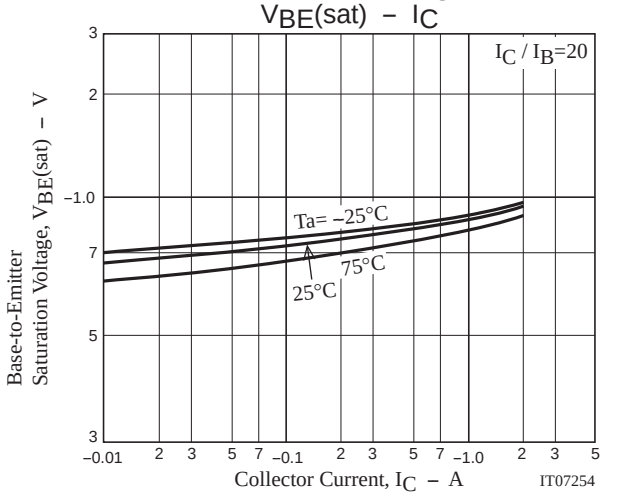

IC – VBE
VCE= –2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT07249
Ta=75°C
25°C
–25°C

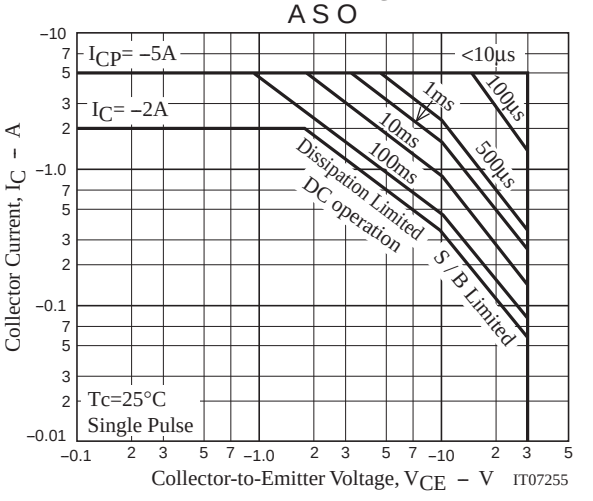

hFE – IC
VCE= –2V
DC Current Gain, hFE
Collector Current, IC – A
IT07250
Ta=75°C
25°C
–25°C

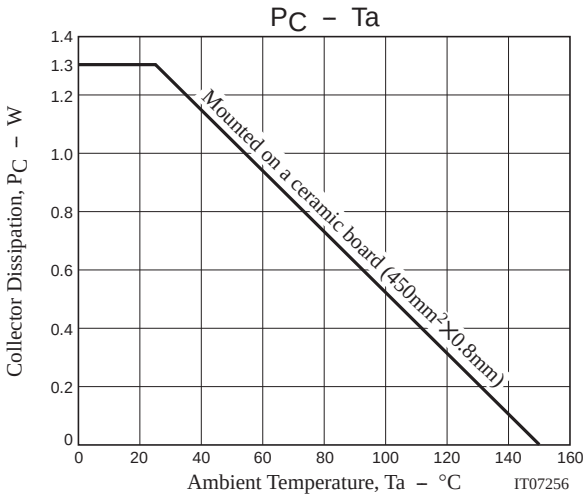

fT – IC
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT07251

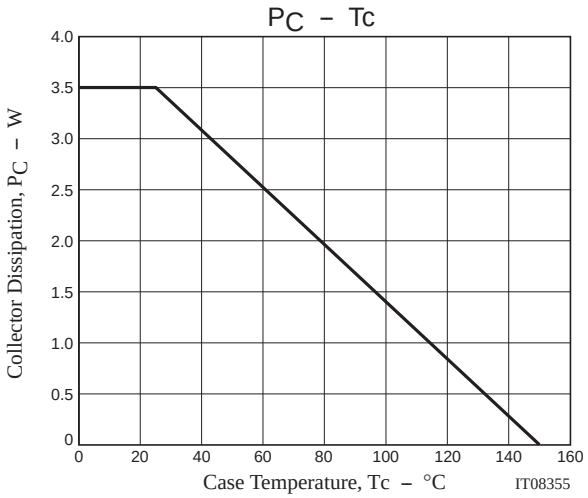

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT07252


VCE(sat) – IC
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT07253
Ta=75°C
–25°C
25°C


VBE(sat) – IC
IC / IB=20
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT07254
Ta= –25°C
75°C
25°C


A S O
ICP= –5A
IC= –2A
<10µs
100µs
1ms
10ms
100ms
500µs
Dissipation Limited
DC operation
S / B Limited
Tc=25°C
Single Pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT07255


PC – Ta
Collector Dissipation, PC – W
1.4
1.3
1.2
1.0
0.8
0.6
0.4
0.2
0
0
20
40
60
80
100
120
140
160
Mounted on a ceramic board (450mm2×0.8mm)
Ambient Temperature, Ta – °C
IT07256


PC – Tc
Collector Dissipation, PC – W
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
0
20
40
60
80
100
120
140
160
Case Temperature, Tc – °C
IT08355

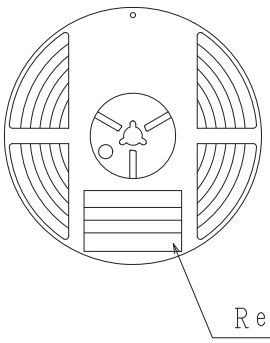
Bag Packing Specification

2SA2124-TD-E

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
PCP	PCP	1,000	4,000	24,000	4 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

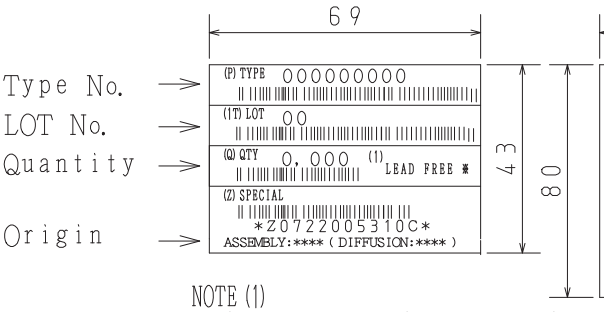
Packing method



Reel label

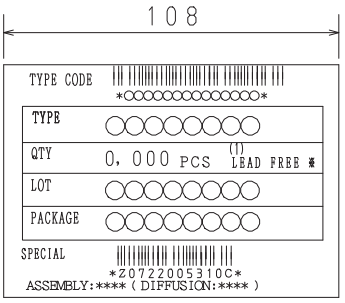
Reel label, Inner box label

(unit:mm)



Outer box label

It is a label at the time of factory shipments. The form of a label may change in physical distribution process.



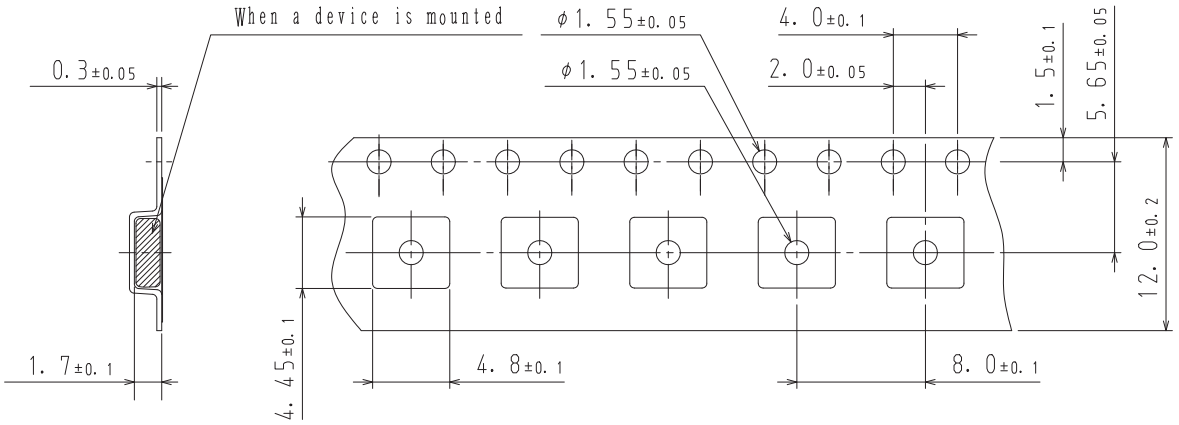
NOTE (1)

The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

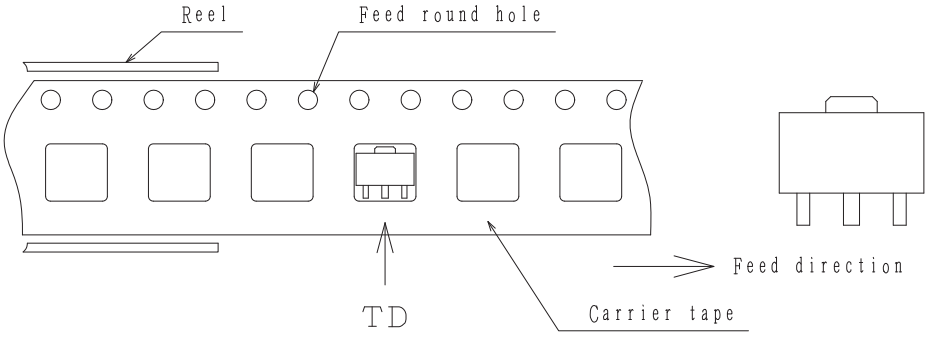
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



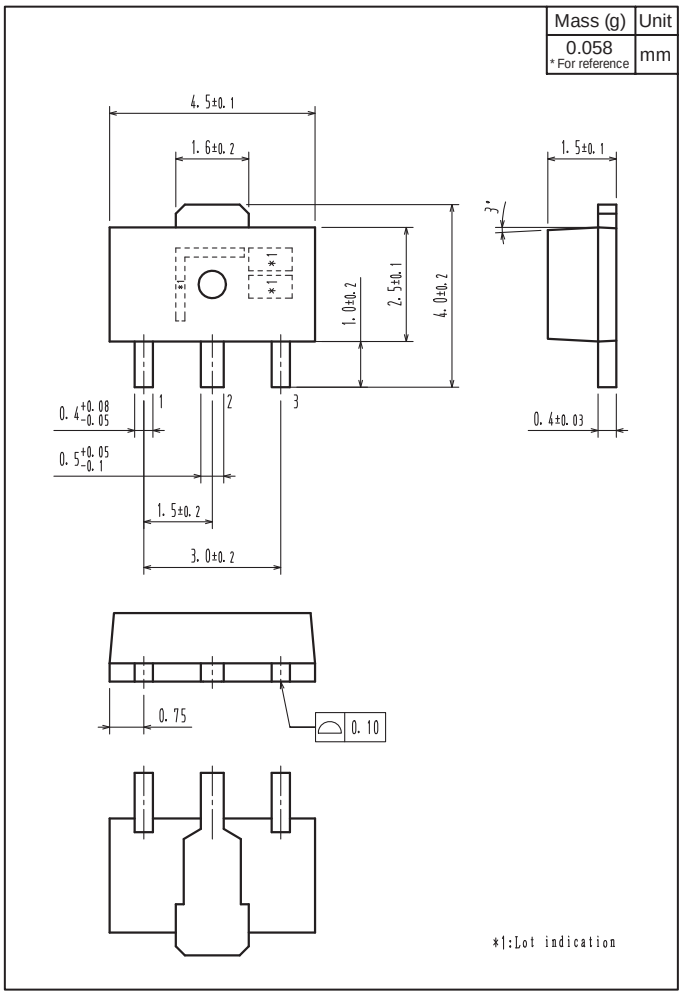
2-2. Device placement direction



Those with pin 1 index on the feed hole side·····TD

Outline Drawing

2SA2124-TD-E



Land Pattern Example