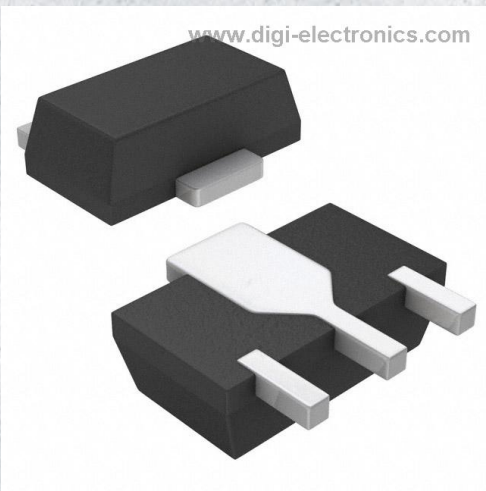
2SC6096-TD-E Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	2SC6096-TD-E-DG
Manufacturer	onsemi
Manufacturer Product Number	2SC6096-TD-E
Description	TRANS NPN 100V 2A PCP
Detailed Description	Bipolar (BJT) Transistor NPN 100 V 2 A 300MHz 1.3 W Surface Mount PCP

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
2SC6096-TD-E	onsemi
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
NPN	2 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
100 V	150mV @ 100mA, 1A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
1µA (ICBO)	300 @ 100mA, 5V
Power - Max:	Frequency - Transition:
1.3 W	300MHz
Operating Temperature:	Mounting Type:
150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-243AA	PCP
Base Product Number:	
2SC6096	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.29.0075	

Ordering number : ENA0434A

2SC6096

Bipolar Transistor
100V, 2A, Low V_{CE}(sat), NPN Single PCP

ON Semiconductor®
http://onsemi.com

Applicaitons
- DC / DC converter, relay drivers, lamp drivers, motor drivers, inverter

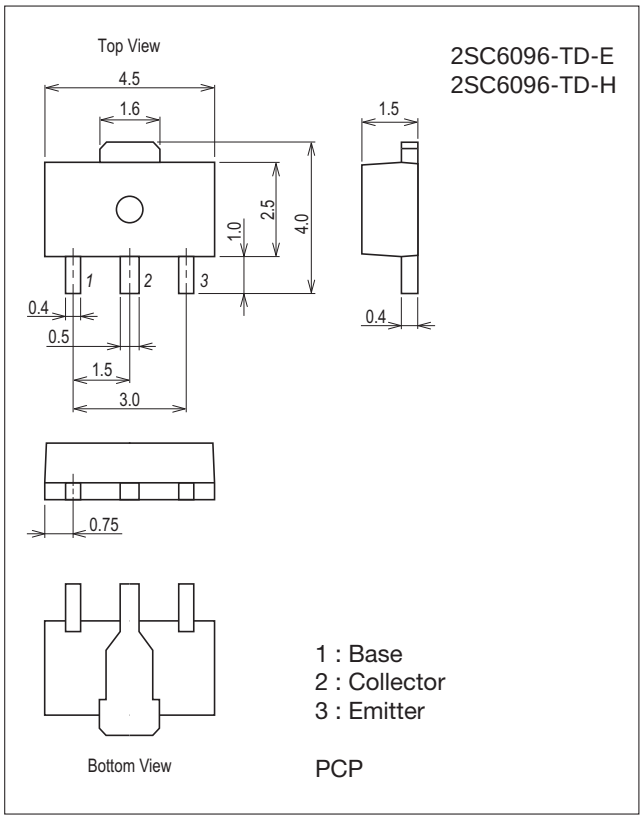
Features
- Adoption of FBET, MBIT process
- Low collector-to-emitter saturation voltage
- High allowable power dissipation
- Large current capacity
- High-speed switching
- Halogen free compliance

Specifications
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		120	V
Collector-to-Emitter Voltage	V_{CES}		120	V
	V_{CEO}		100	V
Emitter-to-Base Voltage	V_{EBO}		6.5	V
Collector Current	I_C		2	A
Collector Current (Pulse)	I_{CP}		3	A

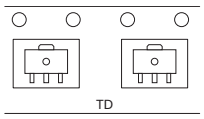
Continued on next page.

Package Dimensions
unit : mm (typ)
7007B-004

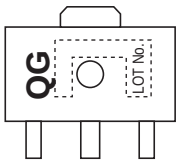


Product & Package Information
- Package : PCP
- JEITA, JEDEC : SC-62, SOT-89, TO-243
- Minimum Packing Quantity : 1,000 pcs./reel

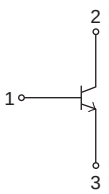
Packing Type: TD



Marking



Electrical Connection



2SC6096

Continued from preceding page.

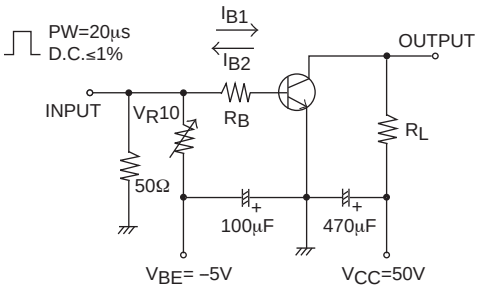
Parameter	Symbol	Conditions	Ratings	Unit
Base Current	I_B		400	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (250mm^2×0.8mm)	1.3	W
		Tc=25°C	3.5	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=80V, I_E=0A			1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0A			1	μA
DC Current Gain	h_{FE}	V_{CE}=5V, I_C=100mA	300		600	
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=300mA		300		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		13		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=1A, I_B=100mA		100	150	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=1A, I_B=100mA		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0A	120			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	I_C=100μA, R_{BE}=0Ω	120			V
	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	100			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0A	6.5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		40		ns
Storage Time	t_{stg}			1100		ns
Fall Time	t_f			40		ns

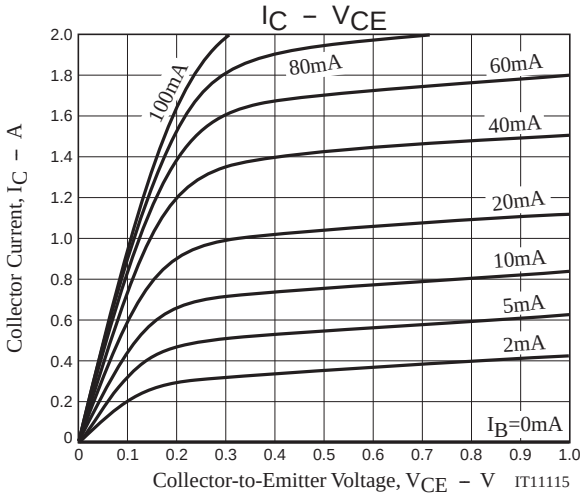
Switching Time Test Circuit

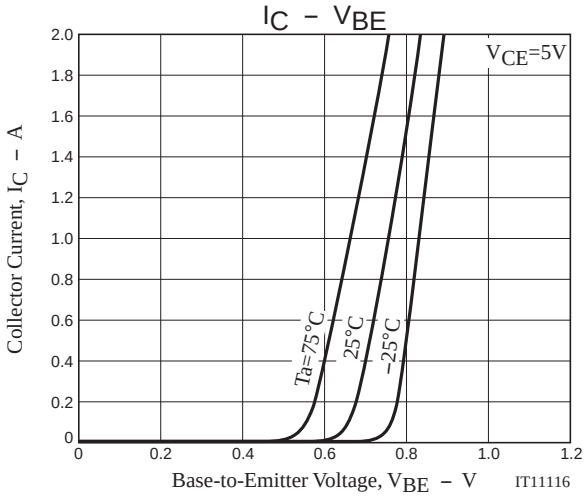


I_C=10I_{B1}= −10I_{B2}=0.5A

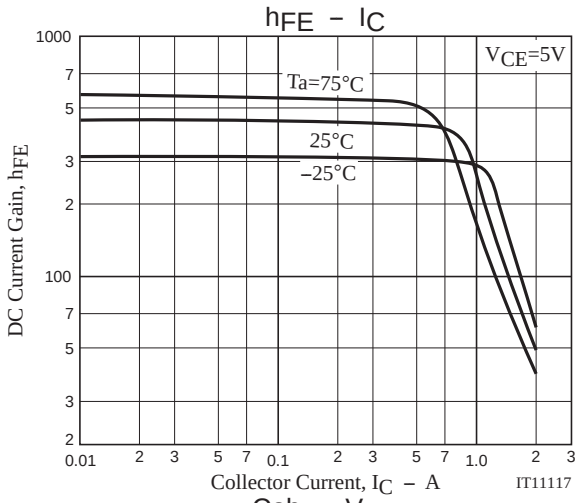
Ordering Information

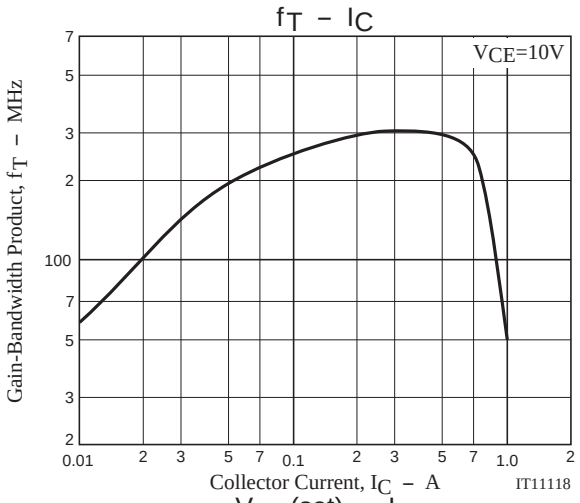
Device	Package	Shipping	memo
2SC6096-TD-E	PCP	1,000pcs./reel	Pb Free
2SC6096-TD-H	PCP	1,000pcs./reel	Pb Free and Halogen Free

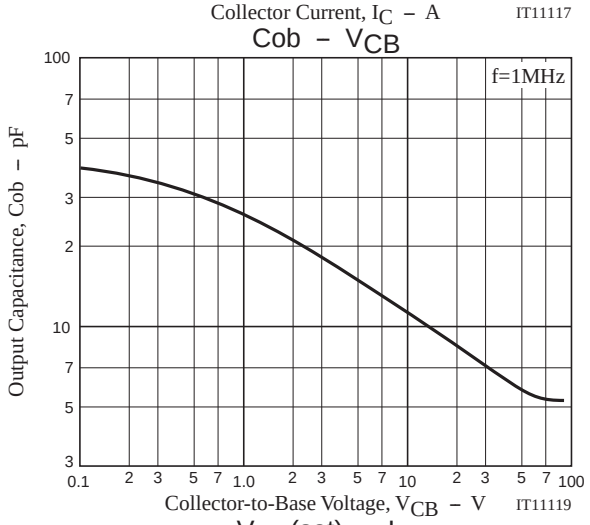


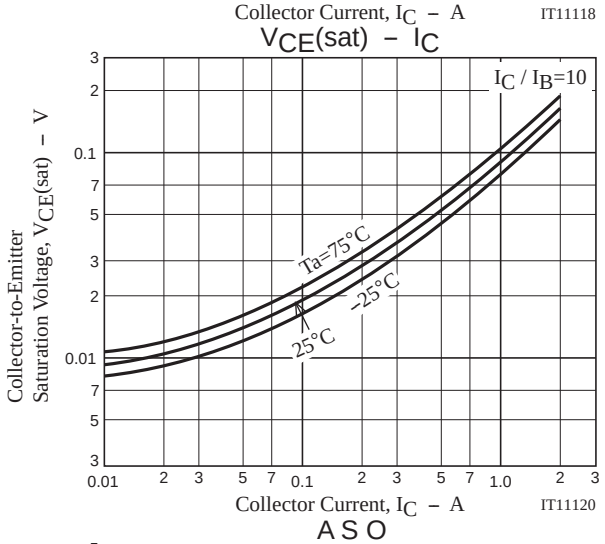


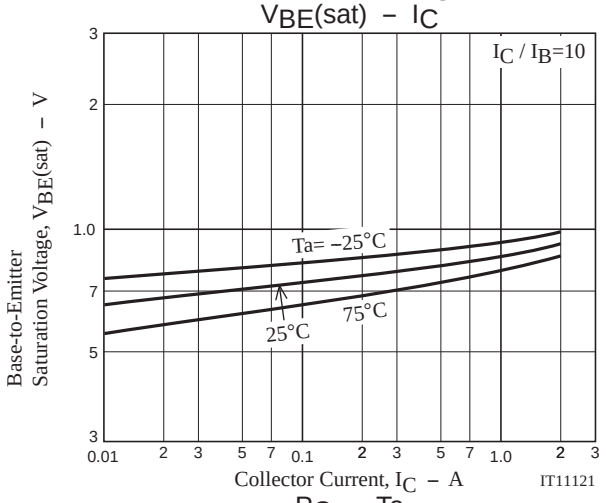
2SC6096

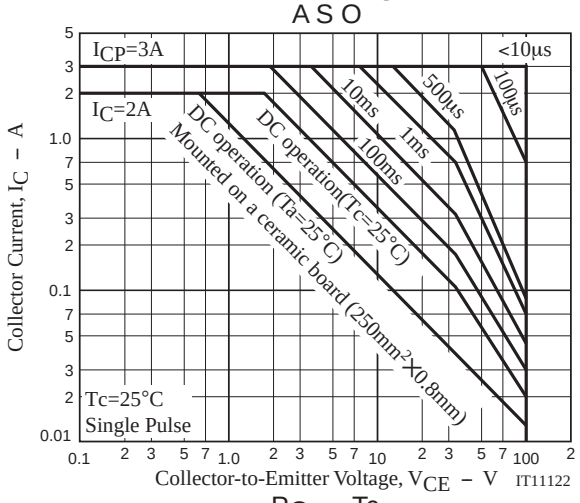

hFE – IC
VCE=5V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT11117

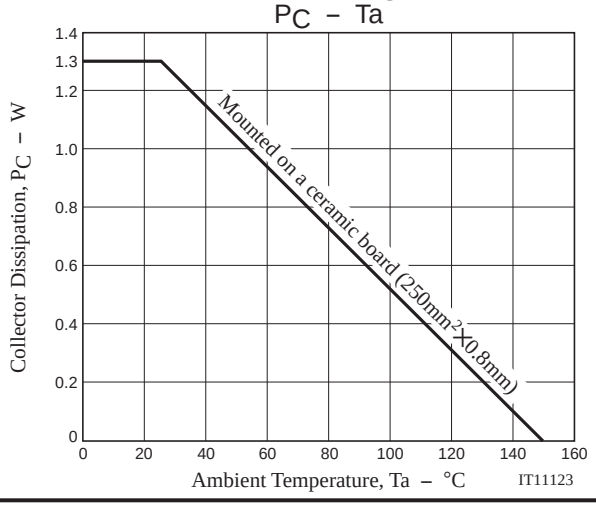

fT – IC
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT11118

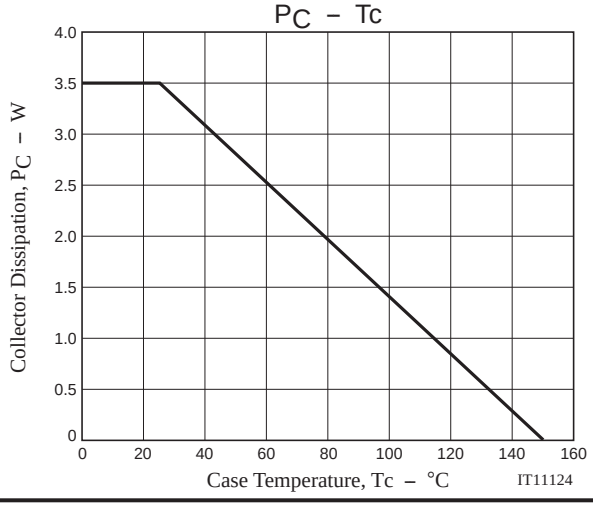

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT11119


VCE(sat) – IC
IC / IB=10
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT11120


VBE(sat) – IC
IC / IB=10
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT11121


A S O
ICP=3A
IC=2A
<10μs
10ms
1ms
500μs
100μs
100ms
DC operation (Ta=25°C)
DC operation(Tc=25°C)
Mounted on a ceramic board (250mm2X0.8mm)
Tc=25°C
Single Pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT11122


PC – Ta
Mounted on a ceramic board (250mm2X0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT11123


PC – Tc
Collector Dissipation, PC – W
Case Temperature, Tc – °C
IT11124

2SC6096

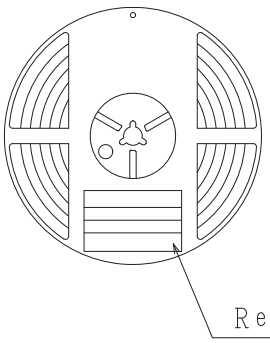
Embossed Taping Specification

2SC6096-TD-E, 2SC6096-TD-H

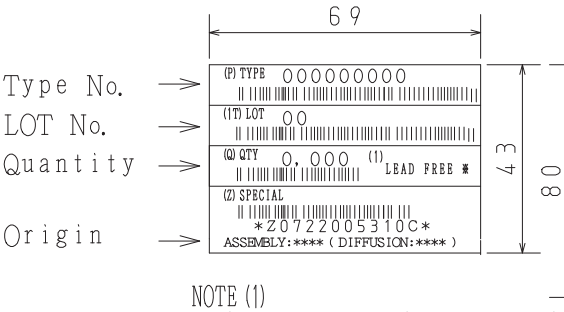
1. Packing Format

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

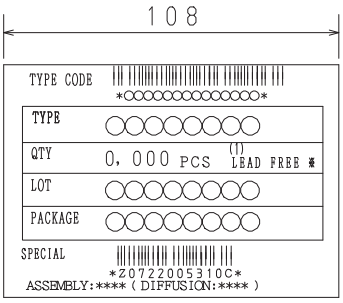


Reel label, Inner box label (unit:mm)



Outer box label

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

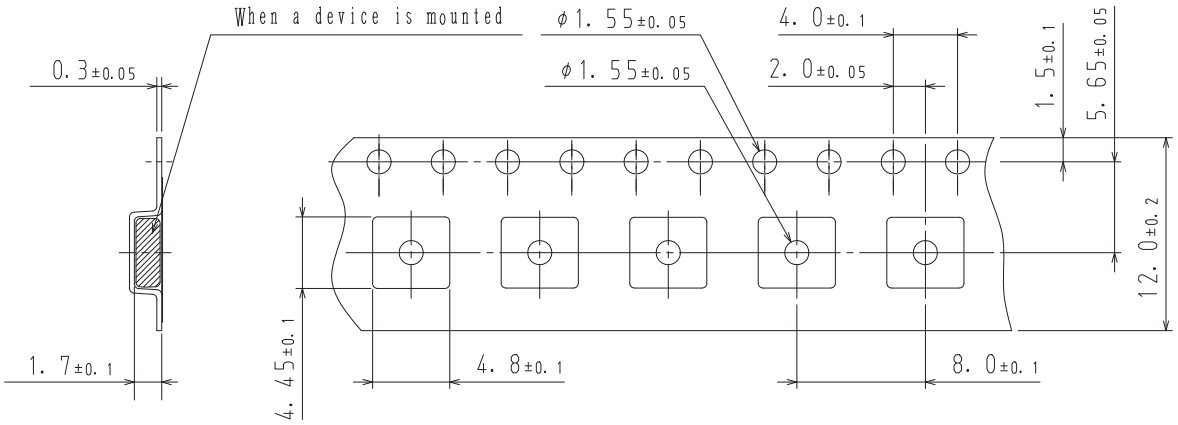


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

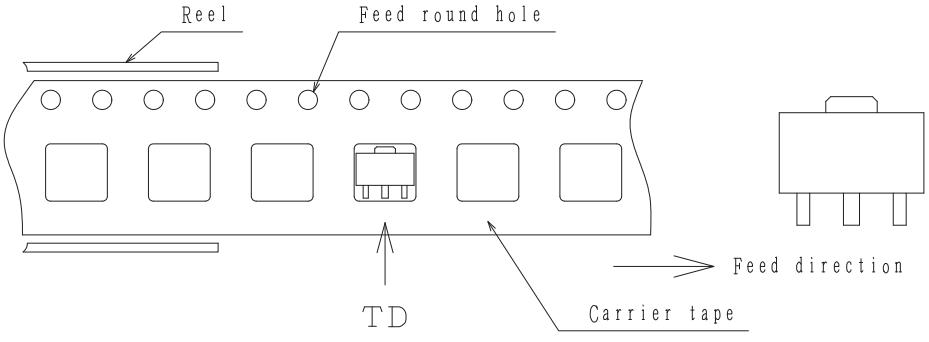
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

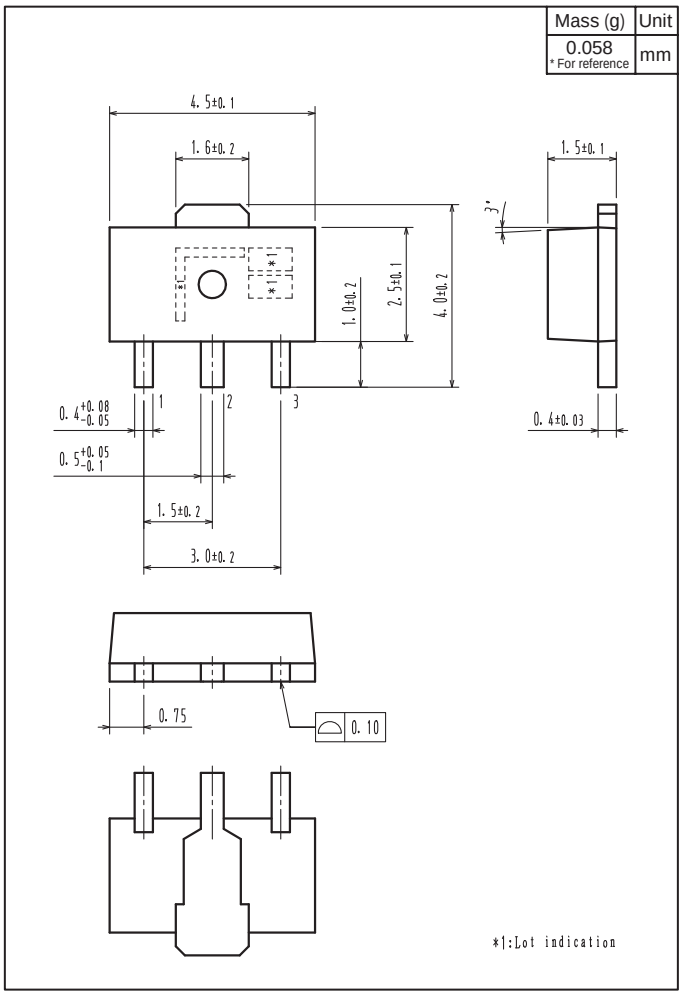


Those with pin 1 index on the feed hole side……TD

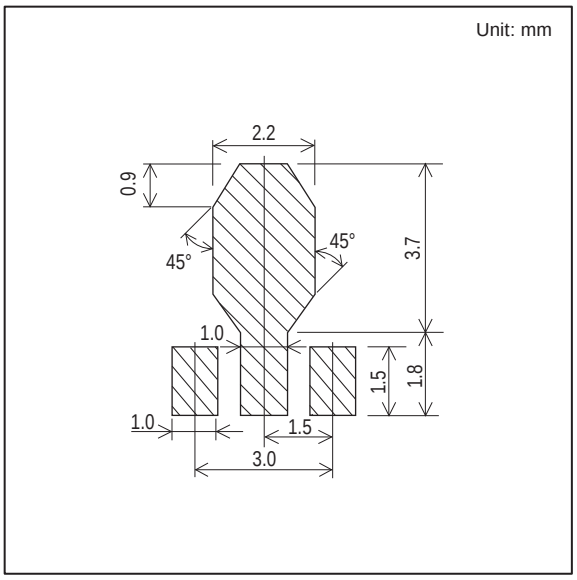
2SC6096

Outline Drawing

2SC6096-TD-E, 2SC6096-TD-H



Land Pattern Example



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