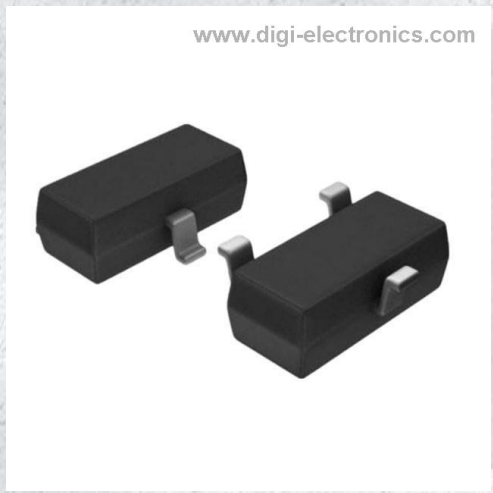
MMBT4401 Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	MMBT4401-DG
Manufacturer	EVVO Semi
Manufacturer Product Number	MMBT4401
Description	TRANS NPN 40V 0.6A SOT23
Detailed Description	Bipolar (BJT) Transistor NPN 40 V 600 mA 250MHz 300 mW Surface Mount SOT-23

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MMBT4401	EVVO Semi
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
NPN	600 mA
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
40 V	750mV @ 50mA, 500mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
100nA	100 @ 150mA, 1V
Power - Max:	Frequency - Transition:
300 mW	250MHz
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-236-3, SC-59, SOT-23-3	SOT-23

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
ECCN:	HTSUS:
EAR99	8541.21.0095

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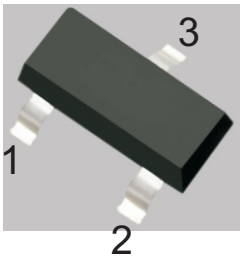
NPN TRANSISTOR

FEATURES
- Switching Transistor

SOT-23



1.BASE
2.EMITTER
3.COLLECTOR

MAXIMUM RATINGS (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector–Base Voltage	V_{CBO}	60	V
Collector–Emitter Voltage	V_{CEO}	40	V
Emitter–Base Voltage	V_{EBO}	6	V
Collector Current — Continuous	I_C	600	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance From Junction To Ambient	R_{thJA}	417	℃/W
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	℃

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C = 100uA, I_E = 0	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C = 1 mA, I_B = 0	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E = 100uA, I_C = 0	6			V
Collector cut-off current	I_{CBO}	V_{CB} = 50V, I_E = 0			0.1	uA
Collector cut-off current	I_{CEX}	V_{CE} = 35V, V_{EB} =0.4V			0.1	uA
Emitter cut-off current	I_{EBO}	V_{EB} = 5V, I_C =0			0.1	uA
DC current gain	h_{FE1}	V_{CE} = 1V, I_C=0.1mA	20			
	h_{FE2}	V_{CE} = 1V, I_C=1mA	40			
	h_{FE3}	V_{CE} = 1V, I_C=10mA	80			
	h_{FE4}	V_{CE} = 1V, I_C = 150mA	100		300	
	h_{FE5}	V_{CE} = 2V, I_C = 500mA	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 150mA, I_B = 15mA			0.4	V
		I_C = 500mA, I_B = 50mA			0.75	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = 150mA, I_B = 15mA			0.95	V
		I_C = 500mA, I_B = 50mA			1.2	V
Transition frequency	f_T	V_{CE} = 10V, I_C = 20mA, f=100MHz	250			MHz
Delay time	t_d	V_{CC}=30V, $V_{BE(off)}$=-2V I_C=150mA, I_{B1}=15mA			15	ns
Rise time	t_r				20	ns
Storage time	t_s	V_{CC} = 30V, I_C = 150mA I_{B1}=I_{B2}=15mA			225	ns
Fall time	t_f				60	ns

TYPICAL CHARACTERICS

Fig.1 Static characteristics

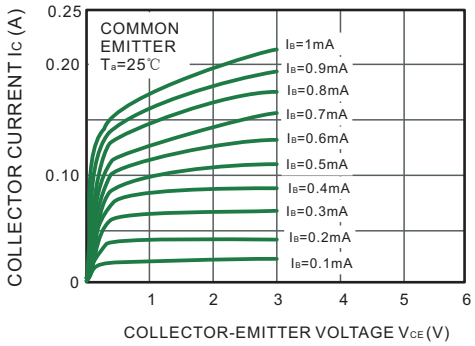


Fig.2 PC —— Ta

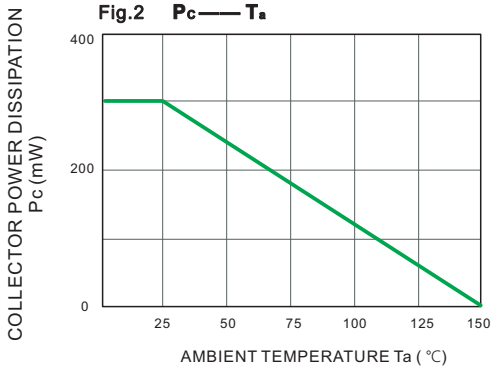


Fig.3 Cob / Cib —— VCB / VEB

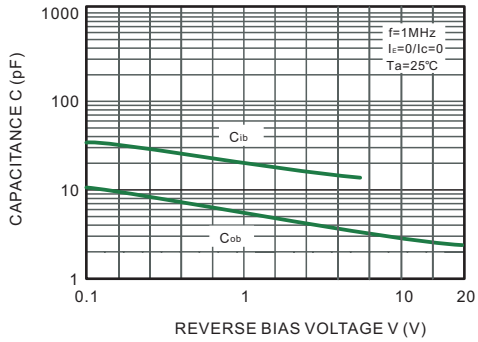


Fig.4 VCEsat —— Ic

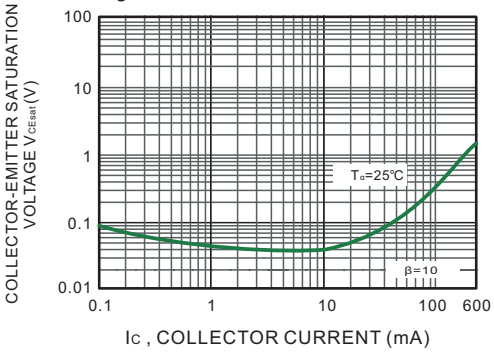


Fig.5 hFE--Ic

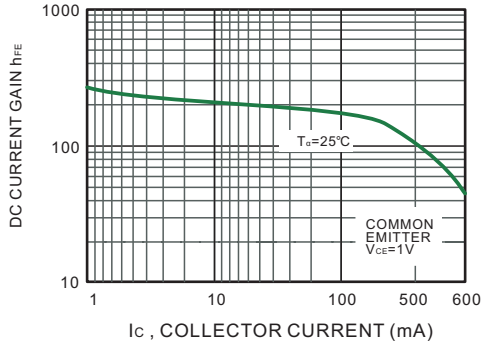


Fig.6 VBEsat —— Ic

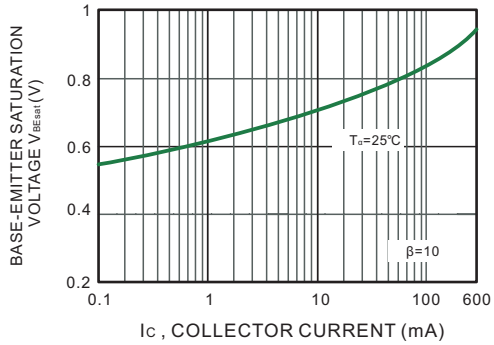


Fig.7 Ic —— VBE

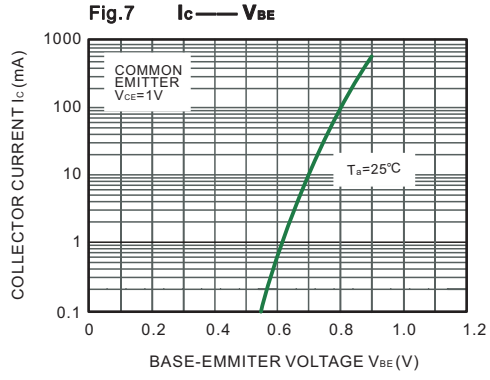
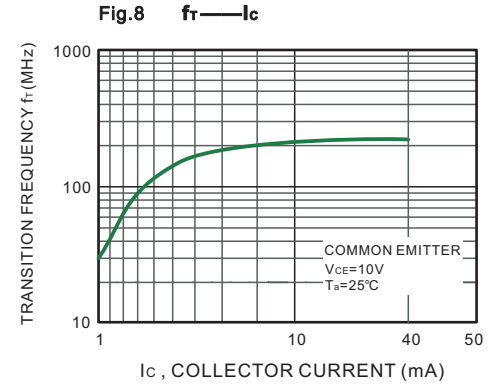


Fig.8 fT ——Ic



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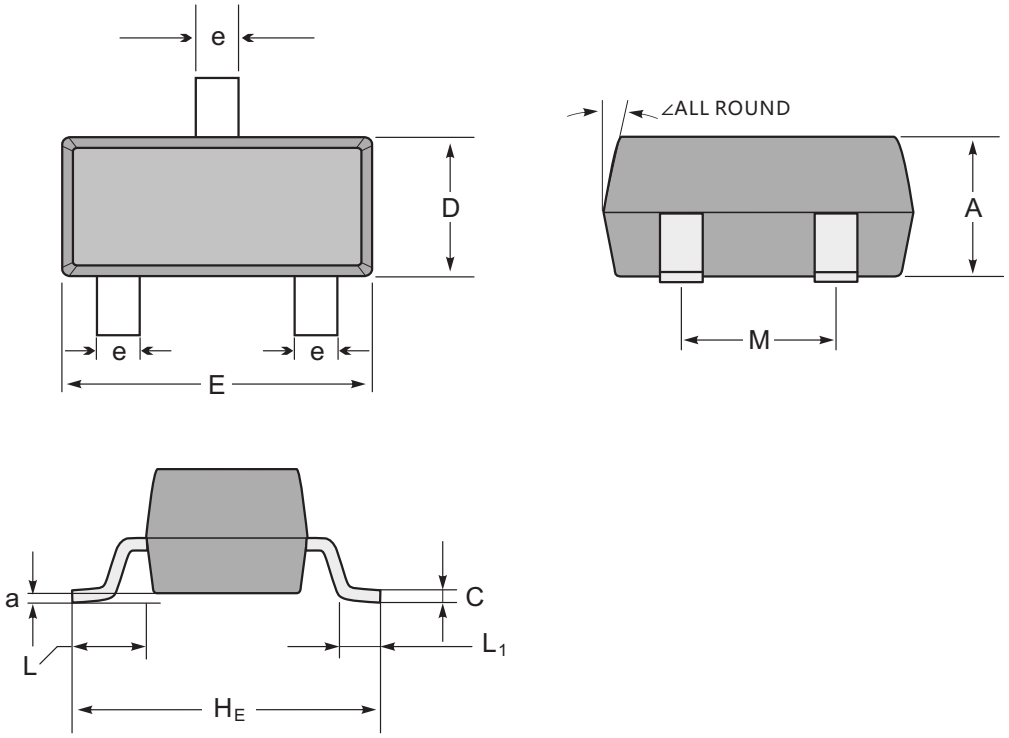
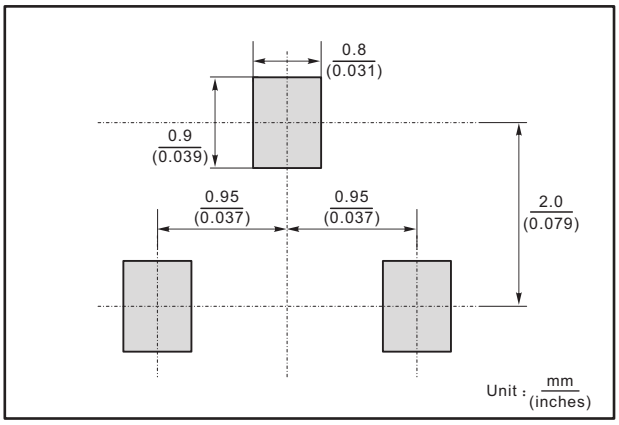
SOT-23 Package Outline Dimensions



SOT-23 mechanical data

UNIT		A	C	D	E	H_E	e	M	L	L_1	a	∠
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0	12°
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15	
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0	
	min	35	3	47	110	87	12	67			6	

The recommended mounting pad size



Marking

Type number	Marking code
MMBT4401	2X

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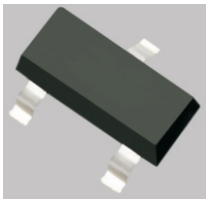
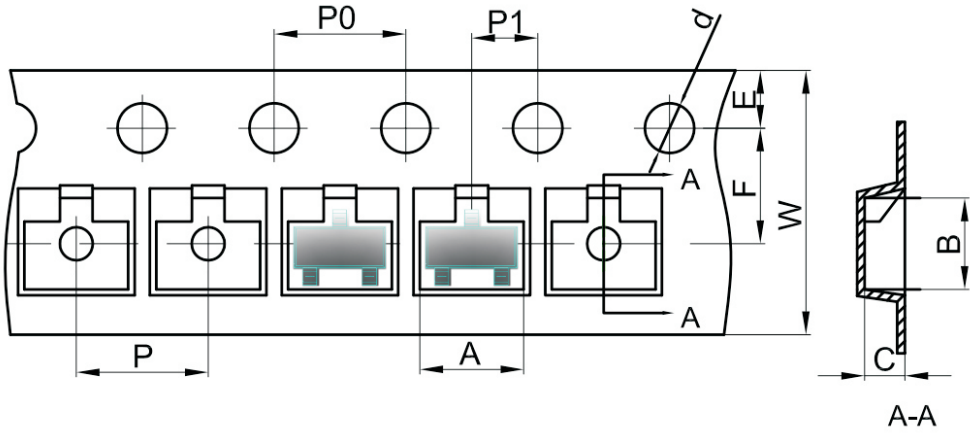
SOT-23 Packing

1.The method of packaging and dimension are shown as below figure. (Dimension in mm)



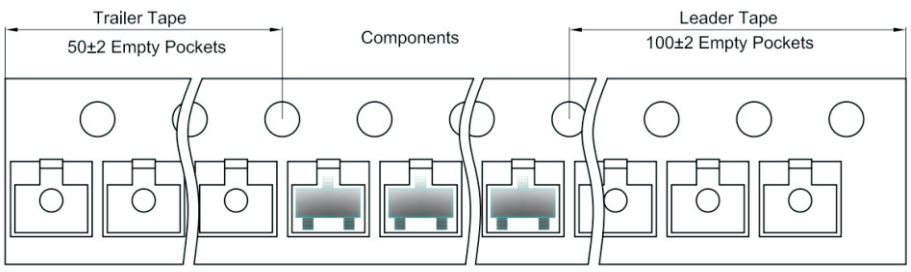
SOT-23

SOT-23 Embossed Carrier Tape



Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



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