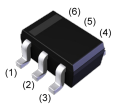
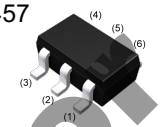
UMH8N / IMH8A

General purpose (dual digital transistor) Datasheet

Parameter	DTr1 and DTr2
V_{CEO}	50V
I_C	100mA
R_1	10kΩ

●Outline

SOT-363	SOT-457
	
UMH8N (UMT6)	IMH8A (SMT6)

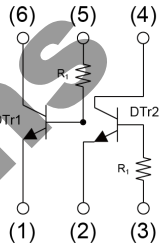
●Features

1)Two DTC114T chips in a UMT or SMT package.
2)Mounting possible with UMT3 or SMT3 automatic mounting machines.
3)Transistor elements are independent, eliminating interference.
4)Mounting cost and area can be cut in half.

●Inner circuit

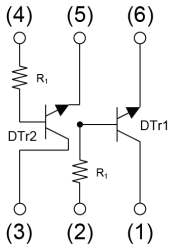
UMH8N

(1) DTr1 Emitter
(2) DTr2 Emitter
(3) DTr2 Base
(4) DTr2 Collector
(5) DTr1 Base
(6) DTr1 Collector



IMH8A

(1) DTr1 Collector
(2) DTr1 Base
(3) DTr2 Collector
(4) DTr2 Base
(5) DTr2 Emitter
(6) DTr1 Emitter



●Application

INVERTER, INTERFACE, DRIVER

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
UMH8N	SOT-363 (UMT6)	2021	TR	180	8	3000	H8
IMH8A	SOT-457 (SMT6)	2928	T108	180	8	3000	H8

●Absolute maximum ratings (T_a = 25°C)

<For DTr1 and DTr2 in common>

Parameter		Symbol	Values	Unit
Collector-base voltage		V_{CBO}	50	V
Collector-emitter voltage		V_{CEO}	50	V
Emitter-base voltage		V_{EBO}	5	V
Collector current		I_C	100	mA
Power dissipation	UMH8N	P_D*1*2	150	mW/Total
	IMH8A	P_D*1*3	300	
Junction temperature		T_j	150	℃
Range of storage temperature		T_{stg}	-55 to +150	℃

●Electrical characteristics (T_a = 25°C)

<For DTr1 and DTr2 in common>

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	I_C = 50μA	50	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C = 1mA	50	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E = 50μA	5	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = 50V	-	-	500	nA
Emitter cut-off current	I_{EBO}	V_{EB} = 4V	-	-	500	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 10mA, I_B = 1mA	-	-	300	mV
DC current gain	h_{FE}	V_{CE} = 5V, I_C = 1mA	100	250	600	-
Input resistance	R_1	-	7	10	13	kΩ
Transition frequency	f_T*4	V_{CE} = 10V, I_E = -5mA, f = 100MHz	-	250	-	MHz

*1 Each terminal mounted on a reference land.

*2 120mW per element must not be exceeded.

*3 200mW per element must not be exceeded.

*4 Characteristics of built-in transistor.

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

<For DTr1 and DTr2 in common>

Fig.1 Grounded Emitter Propagation Characteristics

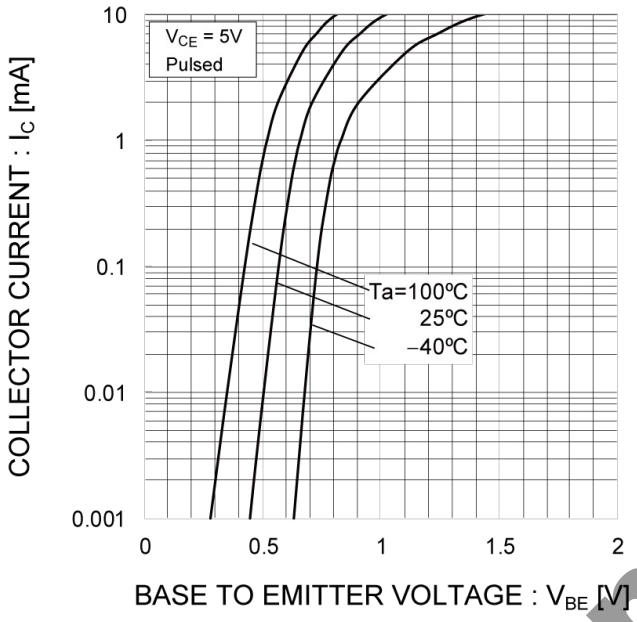


Fig.2 Grounded Emitter Output Characteristics

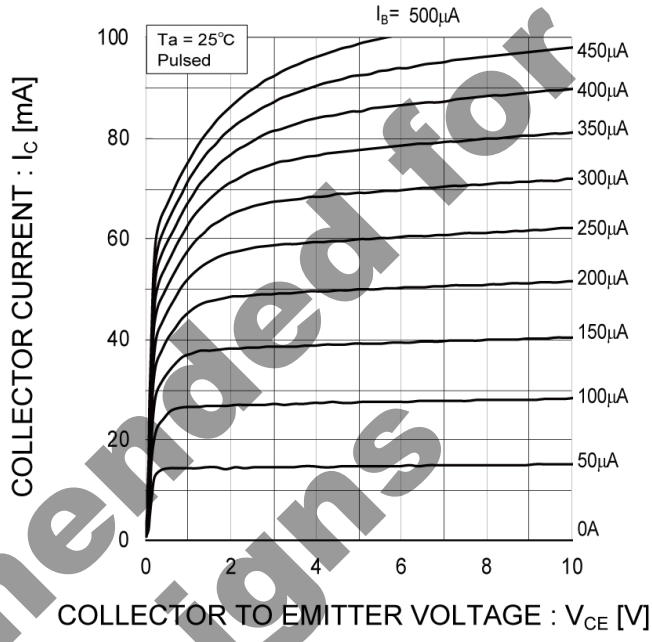


Fig.3 DC Current Gain vs. Collector Current

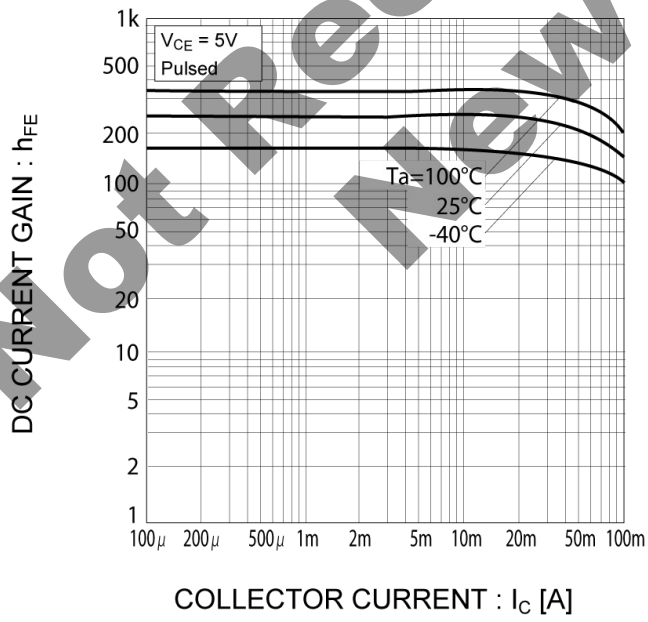
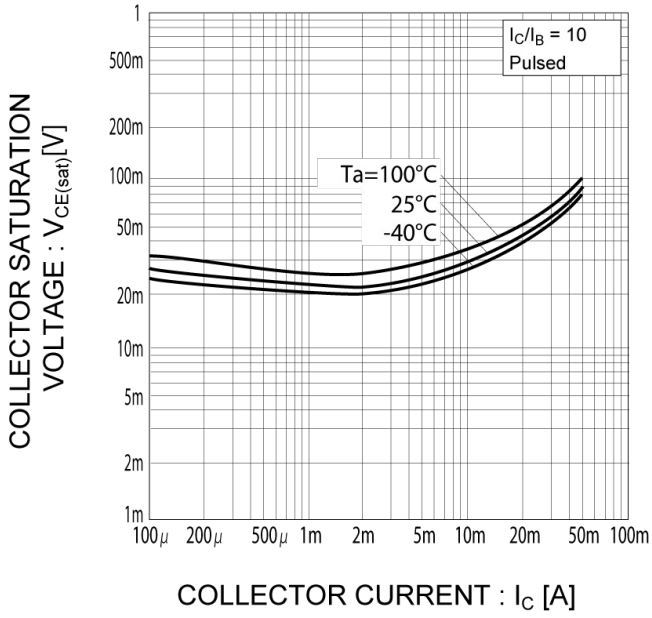
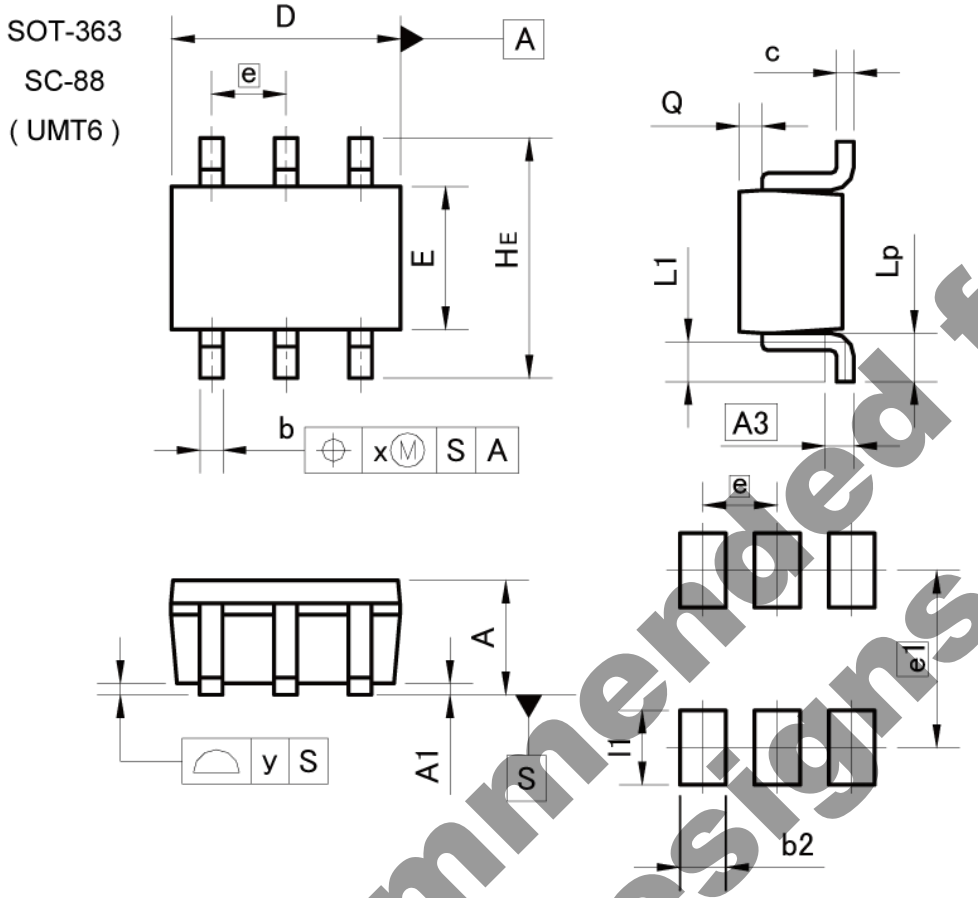


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current



●Dimensions

SOT-363
SC-88
(UMT6)



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

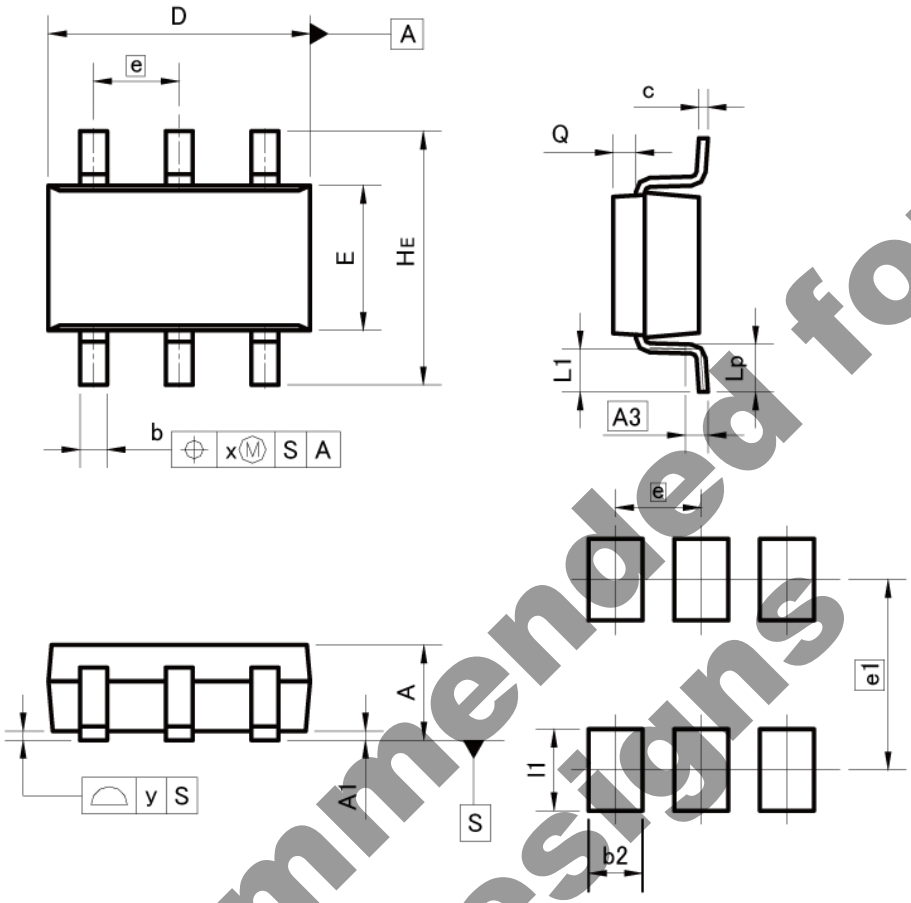
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.031	0.039
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.15	0.30	0.006	0.012
c	0.10	0.20	0.004	0.008
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
e	0.65		0.026	
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.020
Lp	0.25	0.55	0.010	0.022
Q	0.10	0.30	0.004	0.012
x	–	0.10	–	0.004
y	–	0.10	–	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	–	0.40	–	0.016
e1	1.55		0.061	
l1	–	0.65	–	0.026

Dimension in mm/inches

●Dimensions

SOT-457
SC-74
(SMT6)



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

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.30	0.039	0.051
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.25	0.40	0.010	0.016
c	0.09	0.25	0.004	0.010
D	2.80	3.00	0.110	0.118
E	1.50	1.80	0.059	0.071
e	0.95		0.037	
HE	2.60	3.00	0.102	0.118
L1	0.30	0.60	0.012	0.024
Lp	0.40	0.70	0.016	0.028
Q	0.20	0.30	0.008	0.012
x	–	0.20	–	0.008
y	–	0.10	–	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2		0.60	–	0.024
e1	2.10		0.083	
l1	–	0.90	–	0.035

Dimension in mm/inches

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