Datasheet

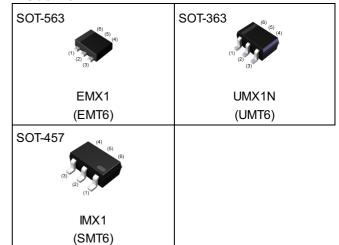
General purpose transistor (dual transistors)

Parameter	Tr1 and Tr2
V _{CEO}	50V
I _C	150mA

Features

- 1) Two 2SC2412K chips in a EMT, UMT or SMT package.
- 2) Mounting possible with EMT3, UMT3 or SMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

Outline



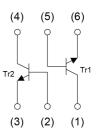
•Inner circuit

EMX1 / UMX1N

- (1) Tr1 Emitter
- (2) Tr1 Base
- (3) Tr2 Collector
- (4) Tr2 Emitter
- (5) Tr2 Base
- (6) Tr1 Collector

IMX1

- (1) Tr1 Collector
- (2) Tr2 Base
- (3) Tr2 Emitter
- (4) Tr2 Collector
- (5) Tr1 Base
- (6) Tr1 Emitter



Application

GENERAL PURPOSE SMALL SIGNAL AMPLIFIER

Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
EMX1	SOT-563 (EMT6)	1616	T2R	180	8	8000	X1
UMX1N	SOT-363 (UMT6)	2021	TN	180	8	3000	X1
IMX1	SOT-457 (SMT6)	2928	T110	180	8	3000	X1

● **Absolute maximum ratings** (T_a = 25°C)

<For Tr1 and Tr2 in common>

Parameter			Values	Unit
Collector-base voltage			60	V
Collector-emitter voltage			50	V
Emitter-base voltage			7	V
Collector current			150	mA
Daniel dia dia attau	EMX1/ UMX1N	P _D *1*2	150	mW/Total
Power dissipation	IMX1	P _D *1*3	300	mW/Total
Junction temperature			150	°C
Range of storage temperature			-55 to +150	°C

● Electrical characteristics (T_a = 25°C)

<For Tr1 and Tr2 in common>

Davanatar	Cumahal	Conditions	Values				
Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit	
Collector-base breakdown voltage	BV _{CBO}	I _C = 50μA	60	-	-	V	
Collector-emitter breakdown voltage	BV _{CEO}	I _C = 1mA	50	-	-	V	
Emitter-base breakdown voltage	BV _{EBO}	I _E = 50μA	7	-	-	V	
Collector cut-off current	I _{CBO}	V _{CB} = 60V	-	-	100	nA	
Emitter cut-off current	I _{EBO}	V _{EB} = 7V	-	-	100	nA	
Collector-emitter saturation voltage	V _{CE(sat)}	$I_C = 50$ mA, $I_B = 5$ mA	1	-	400	mV	
DC current gain	h _{FE}	$V_{CE} = 6V$, $I_{C} = 1mA$	120	-	560	-	
Transition frequency	f _T	$V_{CE} = 12V, I_{E} = -2mA,$ f = 100MHz	-	180	-	MHz	
Output capacitance	C _{ob}	V _{CB} = 12V, I _E = 0A, f = 1MHz	-	2.0	3.5	pF	

^{*1} Each terminal mounted on a reference land.

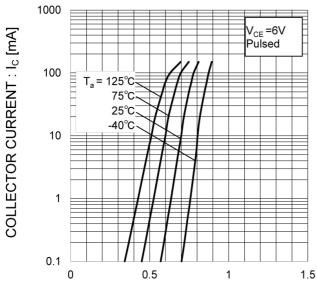
^{*2 120}mW per element must not be exceeded.

^{*3 200}mW per element must not be exceeded.

● Electrical characteristic curves (T_a = 25°C)

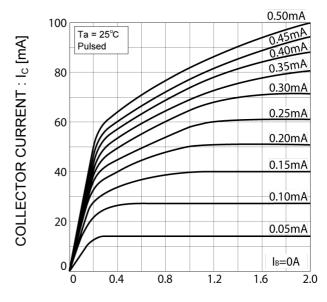
<For Tr1 and Tr2 in common>

Fig.1 Ground Emitter Propagation Characteristics



BASE TO EMITTER VOLTAGE: VBE [V]

Fig.2 Grounded Emitter Output Characteristics



COLLECTOR TO EMITTER VOLTAGE: V_{CE} [V]

Fig.3 DC Current Gain vs. Collector Current (I)

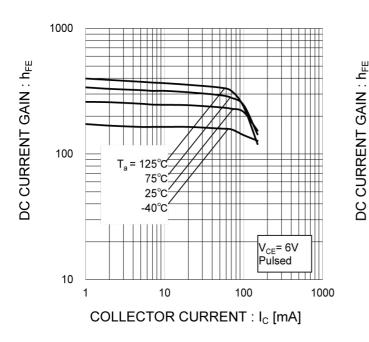
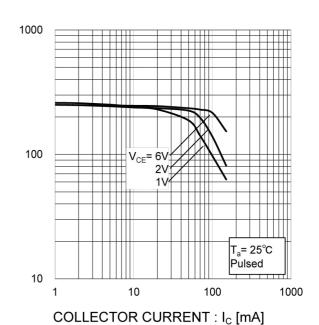


Fig.4 DC Current Gain vs. Collector Current (II)



EMX1 / UMX1N / IMX1 Datasheet

● Electrical characteristic curves (T_a = 25°C)

<For Tr1 and Tr2 in common>

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current(I)

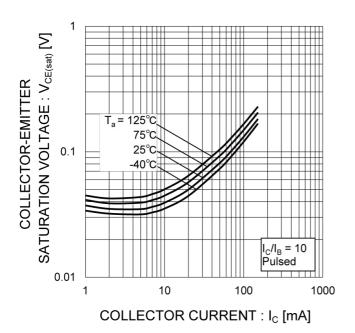


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current(II)

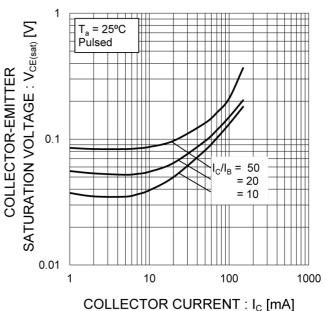


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current (I)

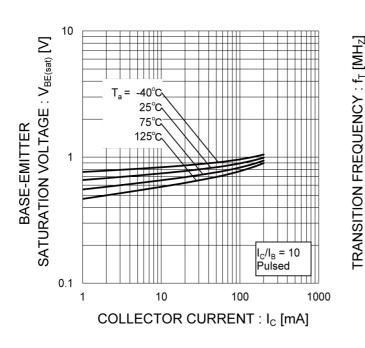
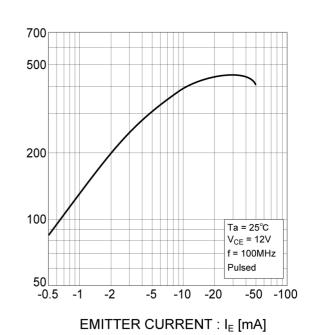


Fig.8 Gain Bandwith Product vs.
Emitter Current



● Electrical characteristic curves (T_a =25°C)

<For Tr1 and Tr2 in common>

Fig.9 Collector Output Capacitance vs.
Collector-Base Voltage
Emitter Input Capacitance vs.
Emitter-Base Voltage

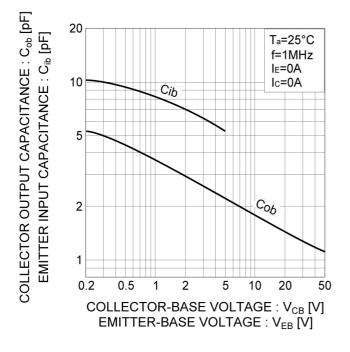


Fig.10 Safe Operating Area

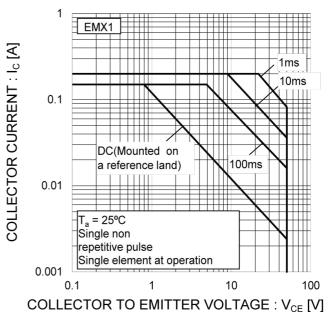


Fig.11 Safe Operating Area

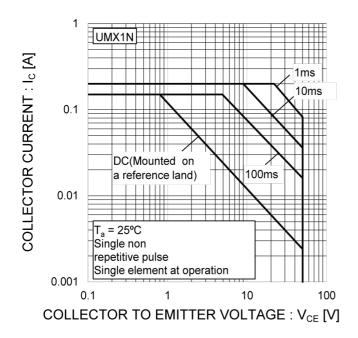
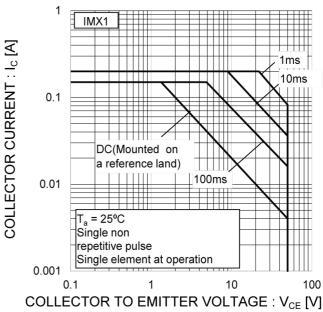
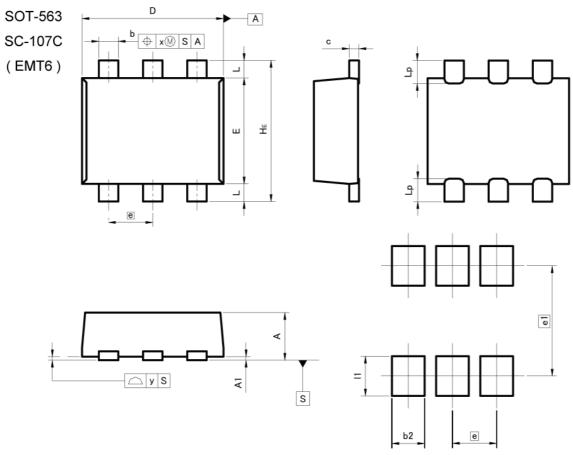


Fig.12 Safe Operating Area



Dimensions



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

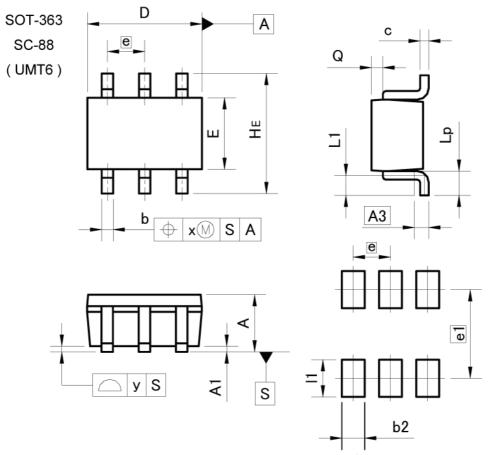
DIM	MILIM	ETERS	INCHES		
DIM	MIN	MAX	MIN	MAX	
Α	0.45	0.55	0.018	0.022	
A1	0.00	0.10	0.000	0.004	
b	0.17	0.27	0.007	0.011	
С	0.08	0.18	0.003	0.007	
D	1.50	1.70	0.059	0.067	
E	1.10	1.30	0.043	0.051	
е	0.9	50	0.0	20	
HE	1.50	1.70	0.059	0.067	
L	0.10	0.30	0.004	0.012	
Lp	_	0.35	-	0.014	
х	_	0.10	_	0.004	
У	_	0.10	-	0.004	

DIM	MILIMETERS		INCHES		
DIW	MIN	MAX	MIN	MAX	
b2	- 0.37		- 0.015		
e1	1.3	25	0.0	49	
11	- 0.45		1	0.018	

Dimension in mm/inches



Dimensions



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

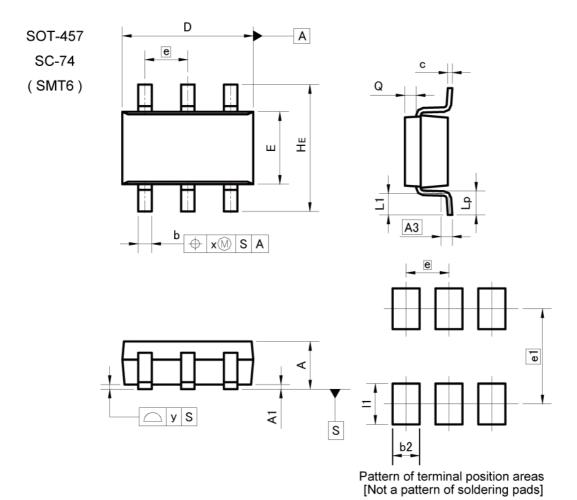
DIM	MILIMETERS		INC	HES
DIM	MIN	MAX	MIN	MAX
Α	0.80	1.00	0.031	0.039
A1	0.00	0.10	0.000	0.004
A3	0.3	25	0.0	10
b	0.15	0.30	0.006	0.012
С	0.10	0.20	0.004	0.008
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
е	0.0	65	0.026	
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.020
Lp	0.25	0.55	0.010	0.022
Q	0.10	0.30	0.004	0.012
х	-	0.10	, -	0.004
У	-	0.10	e 	0.004

DIM	MILIMETERS		INCHES		
DIM	MIN	MAX	MIN	MAX	
b2	- 7	0.40	j -	0.016	
e1	1.5	55	0.0	61	
l1	-	0.65	-	0.026	

Dimension in mm/inches



Dimensions



DIM	MILIM	ETERS	INCHES		
DIM	MIN	MAX	MIN	MAX	
Α	1.00	1.30	0.039	0.051	
A1	0.00	0.10	0.000	0.004	
A3	0.:	25	0.0	10	
b	0.25	0.40	0.010	0.016	
С	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	
е	0.9	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	
х	-	0.20	-	0.008	
У	-	0.10	-	0.004	

DIM	MILIM	ETERS	INCHES		
DIM	MIN MAX		MIN	MAX	
b2	0.60		- 0.024		
e1	2.10		0.0	83	
11	- -2	0.90	- 0.035		

Dimension in mm/inches



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