

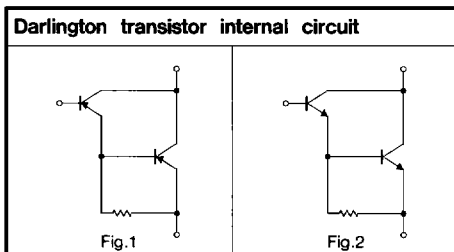
# Transistors

From very small EM3 type package to high power PSD package (the power dissipation is equivalent to TO-220, Pc=35W) transistors.

## EM3 • UMT • SMT

Three types are available to allow the most suitable package depending on size specifications.

Application	Package			$V_{CE0}$ (V) * $V_{CES}$	$I_c$ (mA)	$P_c$ (mW) (Ta=25°C)		$h_{FE}$	$V_{CE}$ (V)	$I_c$ (mA)	Circuit
	EM3 (1608)	UMT (2125)	SMT (2916)			EM3	UMT, SMT				
	Part No.										
Low Noise	—	—	2SA1037AKLN	-40	-150	—	200	390~820	-6	-1	—
	—	—	2SA1455K	-50	-150	—	200	180~560	-6	-1	—
	—	—	2SC2412KLN	-120	-50	—	200	180~820	-6	-2	—
	—	—	2SC3722K	40	150	—	200	390~820	6	1	—
	—	—	2SC3722K	50	150	—	200	180~560	6	1	—
Pre Amp	—	—	2SC3722K	120	50	—	200	180~820	6	2	—
	2SA1774	2SA1576A	2SA1037AK	-50	-150	150	200	120~560	-6	-1	—
	—	2SA1579	2SA1514K	-120	-50	—	200	180~820	-6	-2	—
	2SC4617	2SC4081	2SC2412K	50	150	150	200	120~560	6	1	—
	—	2SC4102	2SC3906K	120	50	—	200	180~820	6	2	—
Driver	—	2SC4723	2SC4642K	25	100	—	200	180~560	6	1	—
	—	2SA1577	2SA1036K	-32	-500	—	200	82~390	-3	-10	—
	—	—	2SB1051K	-32	-1000	—	200	82~390	-3	-100	—
	—	—	2SB1197K	-32	-800	—	200	82~390	-3	-100	—
	—	—	2SB1198K	-80	-500	—	200	82~390	-3	-100	—
	—	2SC4097	2SC2411K	32	500	—	200	82~390	3	10	—
	—	2SD1949	2SD1484K	50	500	—	200	82~390	3	100	—
Low $V_{CE(sat)}$	—	—	2SD1781K	32	800	—	200	82~390	3	100	—
	—	—	2SD1782K	80	500	—	200	82~390	3	100	—
Darlington	—	—	2SD1757K	15	500	—	200	120~560	3	100	—
	—	—	2SB852K	-32*	-300	—	200	5k~	-5	-100	Fig.1
Chroma	—	—	2SD1383K	32*	300	—	200	5k~	5	100	Fig.2
	—	—	2SC4061K	300	100	—	200	39~180	10	10	—
High $h_{FE}$	—	—	2SD2114K	20	500	—	200	560~2700	3	10	—
High $V_{EBO}$	—	2SD2351	2SD2226K	50	150	—	200	560~2700	5	1	—

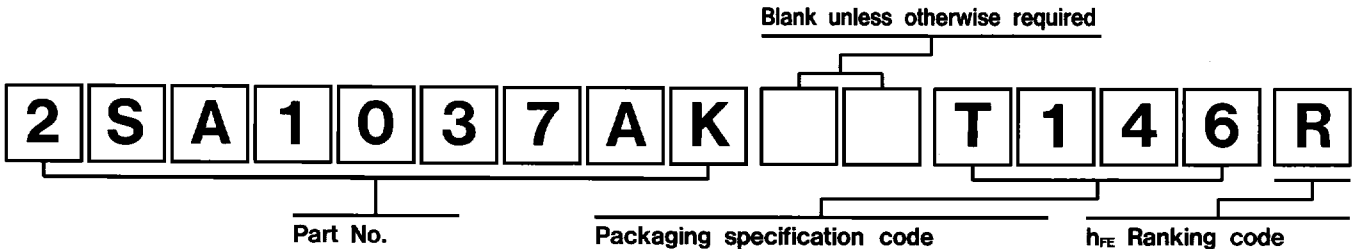


## EM3 • UMT • SMT High frequency type

	Application	Package			$V_{CE0}$ (V)	$I_c$ (mA)	$f_T$ (MHz)	$C_{ob}$ (pF)	$h_{FE}$	$V_{CE}$ (V)	$I_c$ (mA)	
		EM3 (1608)	UMT (2125)	SMT (2916)								
		Part No.										
AM	FM IF AM RF	2SA1821	2SA1808	2SA1733K	-20	-30	400	0.85	39~180	-10	-1	
		—	2SC4128	2SC4018K	32	100	230	1.8	56~180	6	2	
		2SC4618	2SC4098	2SC2413K	25	50	300	1.3	56~270	6	1	
	SW	—	2SC4700	2SC4699K	20*1	200	250	2.0	39~180	5	5	
	FM RF Mix. Osc.	2SC4649	2SC4099	2SC2059K	20	20	500	1.4	39~180	6	1	
VHF	Tuner IF	—	2SC4772	2SC4771K	25	50	600	0.95	27~180	10	10	
	RF SW	2SA1885	2SA1886	—	-10	-100	650	1.2	180~560	-5	-10	
		2SC4997	2SC4998	—	10	100	240	1.4	560~2700	5	10	
		—	2SC4773	2SC4326LK	6	50	800	1.1	120~560	5	5	
		—	2SC4774	2SC4713K	6	50	800	1.0	120~560	5	5	
	UHF	TV Tuner Mix. Osc.	—	2SC4103	2SC3802K	25	30	1100	0.8	39~270	10	4
			2SC4619	2SC4100	2SC3082K	19	50	1100	1.0	39~270	10	5
2SC4725			2SC4082	2SC3837K	18	50	1500	0.9	27~270	10	10	
—			2SC4084	2SC3839K	20	50	2000	0.8	27~270	10	5	
—	2SC4726	2SC4083	2SC3838K	11	50	3200	0.8	27~270	10	5		

●Product Designation

Specify part No., packaging specification code and  $h_{FE}$  ranking code.



Packaging specification code

Package	EM3	UMT	SMT
Code	TL	T106	T146
	TR	T107	T147

$h_{FE}$  Ranking code

Code	$h_{FE}$ Range
L	27~56
M	39~82
N	56~120
P	82~180
Q	120~270
R	180~390
S	270~560
E	390~820
U	560~1200
V	820~1800
W	1200~2700
A	1k~
B	5k~
C	10k~

Transistors

Land pattern

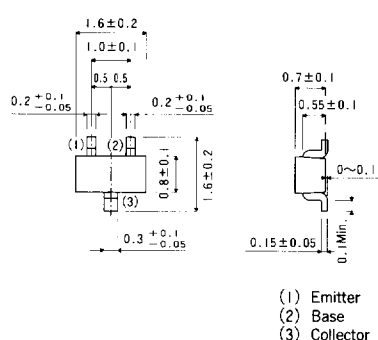
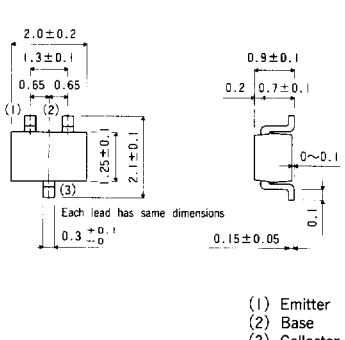
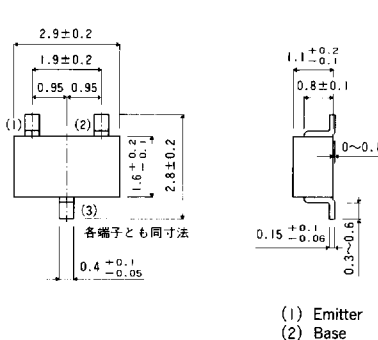



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The Class and Basic ordering Units for Standard and Semi-standard Products Units

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Part Marking

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	EM3	UMT	SMT (SC-59/Japanese SOT-23)
(Unit : mm)			
Dimensions	 <p>(1) Emitter (2) Base (3) Collector</p>	 <p>Each lead has same dimensions</p> <p>(1) Emitter (2) Base (3) Collector</p>	 <p>各端子とも同寸法</p> <p>(1) Emitter (2) Base (3) Collector</p>
Actual size	-	-	-
Enlarged (×3.0)			

# Transistors

## EM3 · UMT · SMT

### ●Packaging

Package	Packaging style	Packaging style	Direction	Code	Quantity /package (pcs)	Quantity /Unit (pcs)
EM3	Taping	Embossed reel tape	Pin 1 side on sprocket hole side	TL	3,000	-
			Pin 2 side on sprocket hole side	TR		
UMT	Taping	Embossed reel tape	Pin 1 side on sprocket hole side	T106	3,000	-
			Pin 2 side on sprocket hole side	T107		
SMT	Taping	Embossed reel tape	Pin 1 side on sprocket hole side	T146	3,000	-
			Pin 2 side on sprocket hole side	T147		

### ●Packaging Specifications

(Unit : mm)

EM3	UMT	SMT																																								
<table border="1"> <thead> <tr> <th>Package</th> <th>Code</th> <th>Package</th> <th>Code</th> <th>Package</th> <th colspan="3">Size</th> </tr> <tr> <th colspan="4"></th> <th>A</th> <th>B</th> <th>C</th> <th></th> </tr> </thead> <tbody> <tr> <td>EM3</td> <td>TR</td> <td>EM3</td> <td>TL</td> <td>EM3</td> <td>1.8 ± 0.1</td> <td>1.8 ± 0.1</td> <td>0.9 ± 0.2</td> </tr> <tr> <td>UMT</td> <td>T107</td> <td>UMT</td> <td>T106</td> <td>UMT</td> <td>2.2 ± 0.1</td> <td>2.4 ± 0.1</td> <td>1.15 ± 0.1</td> </tr> <tr> <td>SMT</td> <td>T147</td> <td>SMT</td> <td>T146</td> <td>SMT</td> <td>3.1 ± 0.1</td> <td>3.2 ± 0.1</td> <td>1.35 ± 0.1</td> </tr> </tbody> </table>			Package	Code	Package	Code	Package	Size							A	B	C		EM3	TR	EM3	TL	EM3	1.8 ± 0.1	1.8 ± 0.1	0.9 ± 0.2	UMT	T107	UMT	T106	UMT	2.2 ± 0.1	2.4 ± 0.1	1.15 ± 0.1	SMT	T147	SMT	T146	SMT	3.1 ± 0.1	3.2 ± 0.1	1.35 ± 0.1
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SMT	T147	SMT	T146	SMT	3.1 ± 0.1	3.2 ± 0.1	1.35 ± 0.1																																			

### ●MOSFET

Application	Package			V <sub>DSS</sub> (V)	I <sub>D</sub> (A)	P <sub>D</sub> (W)	V <sub>GS</sub> (th) (V)	V <sub>DS</sub> (V)	I <sub>D</sub> (mA)
	MPT	CPT F5	PSD						
Part No.									
Switching	-	2SK1973	-	60	2	10	2.0~4.0		
	-	2SK2094	-	60	2	10	1.0~2.5	10	1
	2SK2103	-	-	30	2	2 *	1.0~2.5	10	1
	-	-	☆2SK2041	60	10	35	1.0~2.5	10	1
	-	-	☆2SK2042	450	5	35	2.0~4.0	10	1