

FEATURES

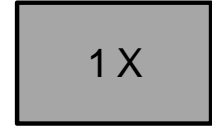
Epitaxial planar die construction.

Complementary NPN types available(DTC).

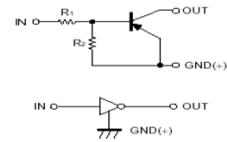
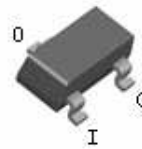
Built-in biasing resistors, $R_1=R_2$.

Also available in lead free version.

Type No.	Marking
DTA114ECA	14
DTA124ECA	15
DTA143ECA	13
DTA144EUA	16



SOT-23



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Symbol	Parameter	Value	Units	
V_{CC}	Supply Voltage	-50	V	
V_{IN}	Input Voltage	DTA114ECA DTA124ECA DTA143ECA DTA144ECA	+10 to -40 +10 to -40 +10 to -30 +10 to -40	V
I_o	Output Current	DTA114ECA DTA124ECA DTA143ECA DTA144ECA	-50 -30 -100 -30	mA
$I_C(\text{Max.})$	Output current	ALL	-100	mA
P_D	Power Dissipation		200	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air		625	$^\circ\text{C}/\text{W}$
T_j	Junction Temperature		150	$^\circ\text{C}$
T_{stg}	Operating and Storage and Temperature Range		-55 to +150	$^\circ\text{C}$

Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(off)}$	$V_{CC}=-5V, I_O=-100\mu A$	-0.5	-1.1	-	V
Input Voltage	$V_{I(on)}$	$V_O=-0.3V, I_O=-10mA$	-	-1.9	-3	
DTA114ECA		$V_O=-0.2V, I_O=-5mA$				
DTA124ECA		$V_O=-0.3V, I_O=-20mA$				
DTA143ECA		$V_O=-0.3V, I_O=-2mA$				
DTA144ECA						
Output Voltage	$V_{O(on)}$	$I_O/I_I=-10mA/-0.5mA,$	-	-0.1	-0.3	V
Input Current	I_I	$V_I=-5V$	-	-	-0.88	mA
DTA114ECA					-0.36	
DTA124ECA					-1.8	
DTA143ECA					-0.18	
DTA144ECA						
Output Current	$I_{O(off)}$	$V_{CC}=-50V, V_I=0V$	-	-	-0.5	μA
DC Current Gain	G_I	$V_O=-5V, I_O=-5mA$	30	-	-	
DTA114ECA		$V_O=-5V, I_O=-5mA$	56			
DTA124ECA		$V_O=-5V, I_O=-10mA$	20			
DTA143ECA		$V_O=-5V, I_O=-5mA$	68			
DTA144ECA						
Input Resistor	$R_1(R_2)$		7	10	13	k Ω
DTA114ECA			15.4	22	28.6	
DTA124ECA			3.29	4.7	6.11	
DTA143ECA			32.9	47	61.1	
DTA144ECA						
Resistance Ratio	R_2/R_1	-	0.8	1	1.2	
Gain-Bandwidth Product	f_T	$V_{CE}=-10V, I_E=5mA,$ $f=100MHz$	-	250	-	MHz

RATING AND CHARACTERISTIC CURVES

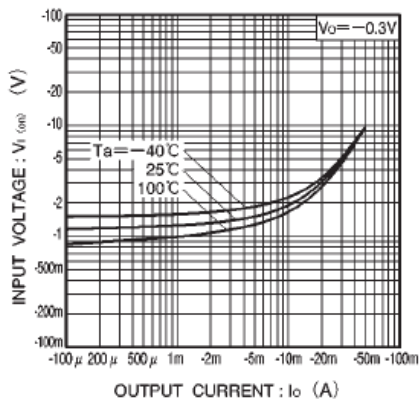


Fig.1 Input voltage vs. output current (ON characteristics)

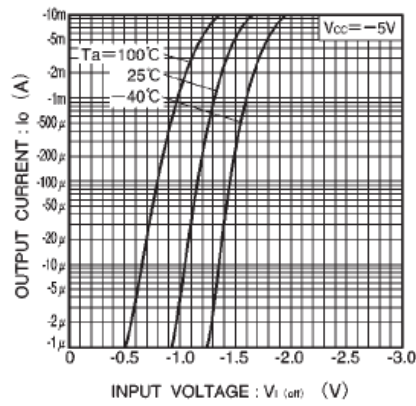


Fig.2 Output current vs. input voltage (OFF characteristics)

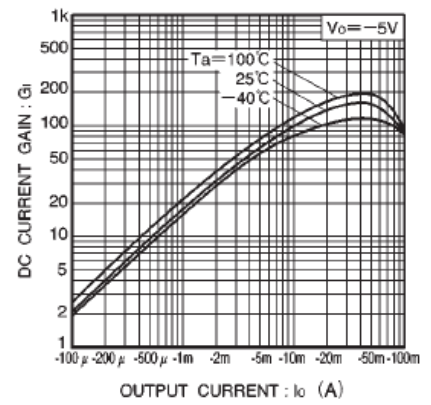
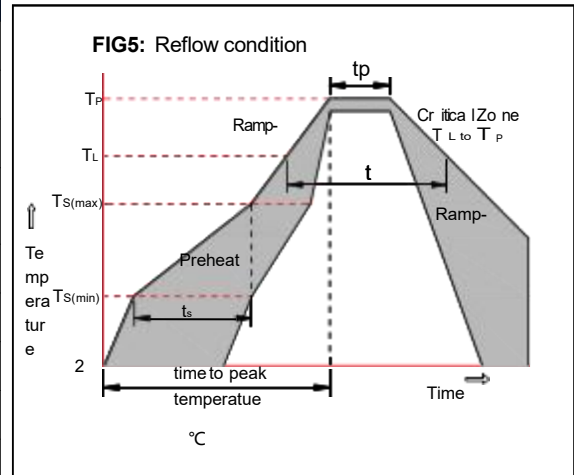


Fig.3 DC current gain vs. output current

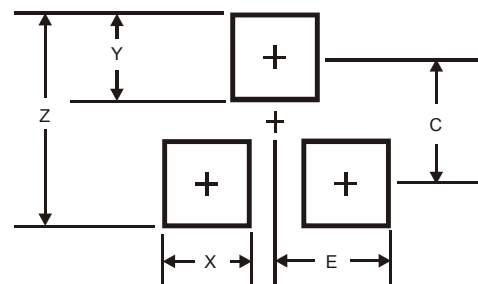
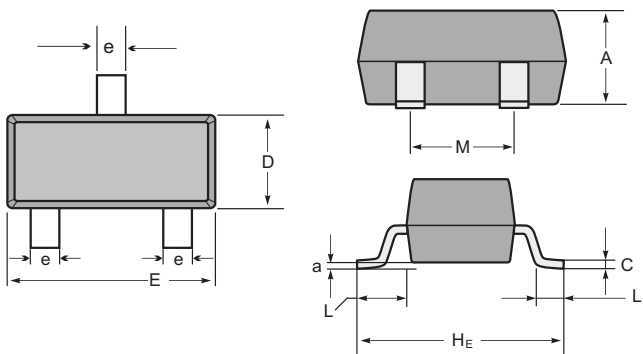
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

SOT23

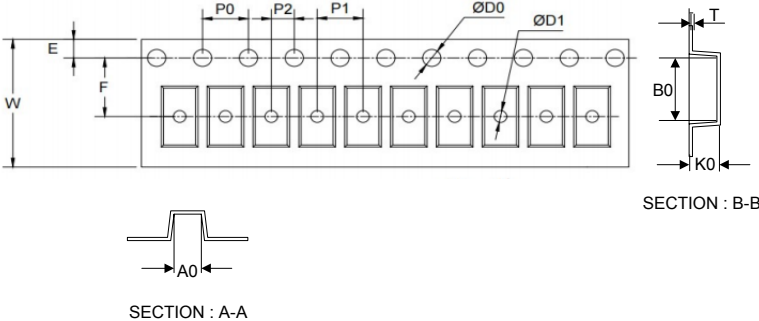
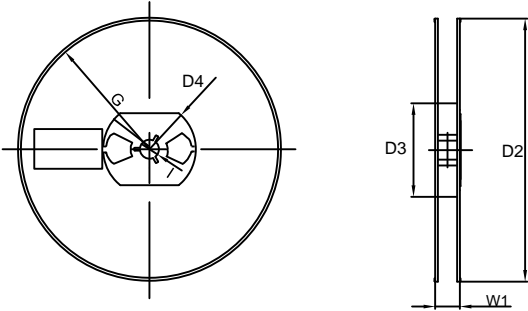


SOT-23 mechanical data

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
	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

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape & reel specification

Tape	Symbol	Dimension (mm)	
	P0	4.00±0.10	
	P1	4.00±0.10	
	P2	2.00±0.10	
	D0	1.55±0.10	
	D1	1.05±0.10	
	E	1.55±0.10	
	F	3.60±0.10	
	W	8.00±0.10	
	A0	3.80±0.20	
	B0	3.25±0.20	
	K0	1.45±0.10	
	T	0.25±0.05	
	<p>7" Reel</p> 	D2	178.0±3.0
		D3	55Min.
D4		R24.0±3.0	
G		R82.0±3.0	
I		13.0±2.0	
W1		11.0±3.0	
Quantity: 3000PCS			