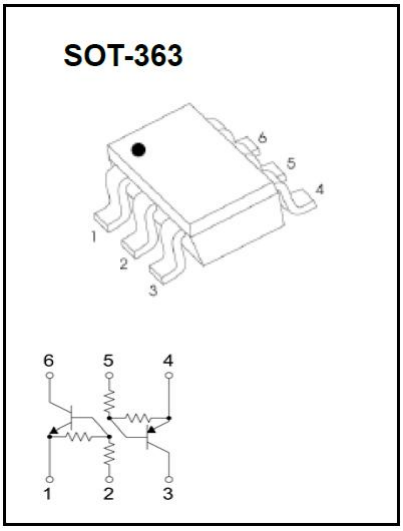
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

AD-UMD12N Digital Transistor (Built-In Resistors)

AD-UMD12N Dual digital transistor (NPN+PNP)



FEATURES

- AD-DTC144E* and AD-DTA144E* series chips in a package
- Transistor elements are independent, eliminating interference
- AEC-Q101 qualified

MARKING

D̄12

MAXIMUM RATINGS NPN TRANSISTOR (T_j = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-10 ~ 40	V
Output current	I_O	30	mA
Peak collector current	$I_{C(MAX)}$	100	mA
Maximum power dissipation	P_D	150	mW
Operating junction and storage temperature range	T_j, T_{stg}	-55 ~ 150	°C

ELECTRICAL CHARACTERISTICS NPN TRANSISTOR (T_j = 25°C unless otherwise specified)

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	V_{CC} = 5V, I_O = 100μA	0.5	-	-	V
	$V_{I(on)}$	V_O = 0.3V, I_O = 2mA	-	-	3	
Output voltage	$V_{O(on)}$	I_O/I_I = 10mA/0.5mA	-	0.1	0.3	V
Input current	I_I	V_I = 5V	-	-	0.18	mA
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	68	-	-	-
Input resistance	R_1	-	32.9	47	61.1	kΩ
Resistance ratio	R_2 /R_1	-	0.8	1	1.2	-
Transition frequency	f_T	V_{CE} = 10V, I_E = -5mA, f = 100MHz	-	250	-	MHz

MAXIMUM RATINGS PNP TRANSISTOR (T_j = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	-50	V
Input voltage	V_{IN}	-40 ~ 10	V
Output current	I_O	-30	mA
Peak collector current	$I_{C(MAX)}$	-100	mA
Maximum power dissipation	P_D	150	mW
Operating junction and storage temperature range	T_j, T_{stg}	-55 ~ 150	°C

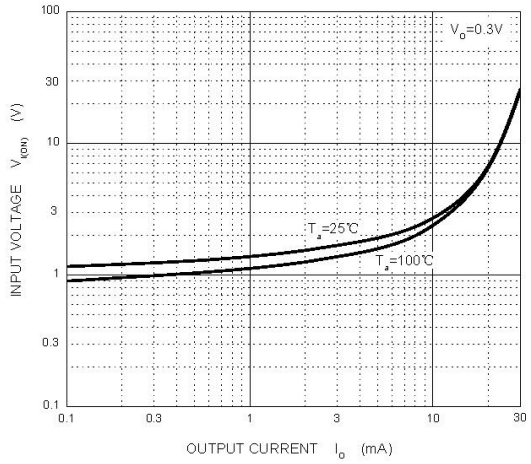
ELECTRICAL CHARACTERISTICS PNP TRANSISTOR (T_j = 25°C unless otherwise specified)

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	V_{CC} = -5V, I_O = -100μA	-0.5	-	-	V
	$V_{I(on)}$	V_O = -0.3V, I_O = -2mA	-	-	-3	
Output voltage	$V_{O(on)}$	I_O/I_I = -10mA/-0.5mA	-	-0.1	-0.3	V
Input current	I_I	V_I = -5V	-	-	-0.18	mA
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	68	-	-	-
Input resistance	R_1	-	32.9	47	61.1	kΩ
Resistance ratio	R_2 /R_1	-	0.8	1	1.2	-
Transition frequency	f_T	V_{CE} = -10V, I_E = 5mA, f = 100MHz	-	250	-	MHz

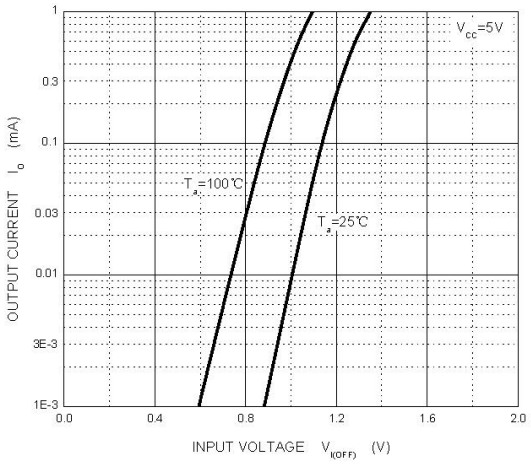
TYPICAL CHARACTERISTICS

NPN Transistor

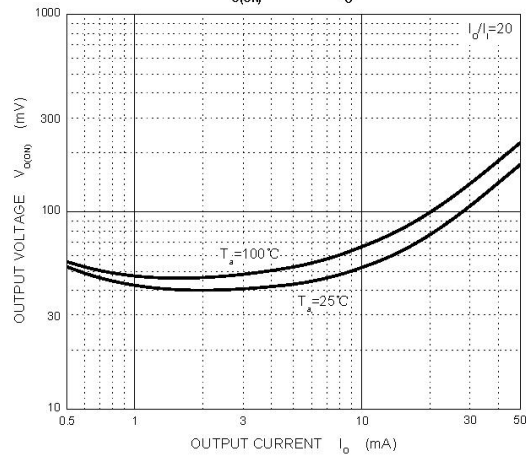
ON Characteristics



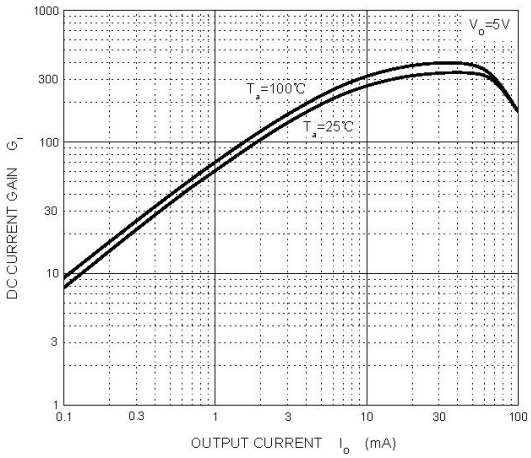
OFF Characteristics



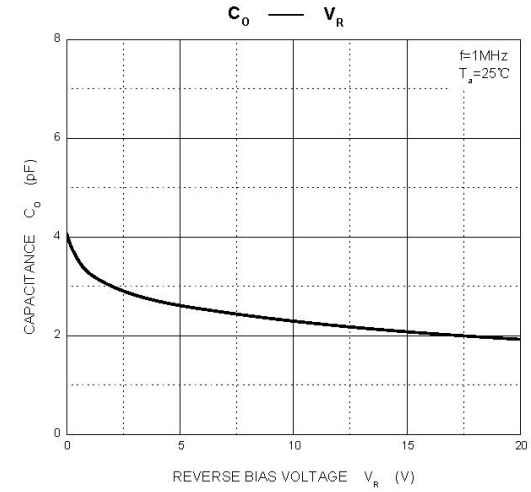
$V_{O(ON)}$ —— I_O



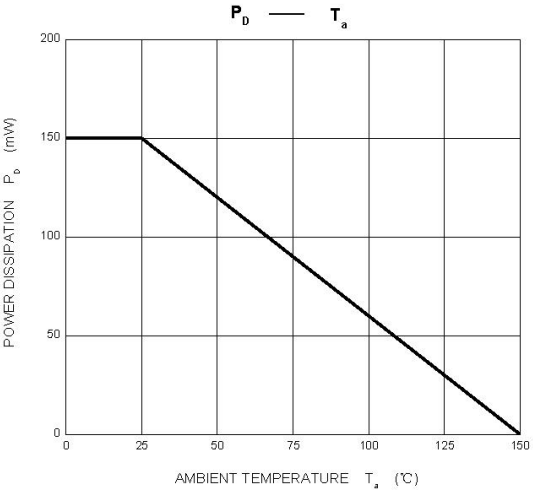
G_I —— I_O



C_O —— V_R



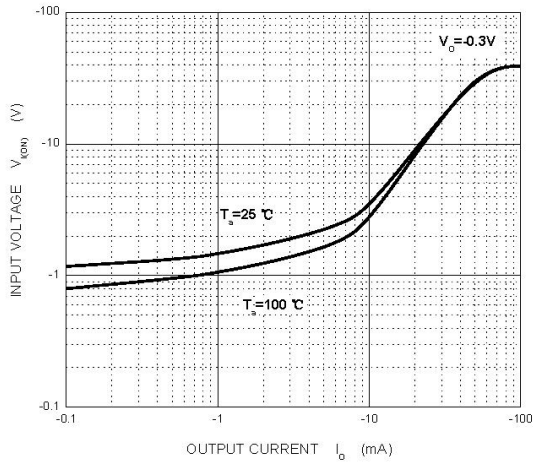
P_D —— T_a



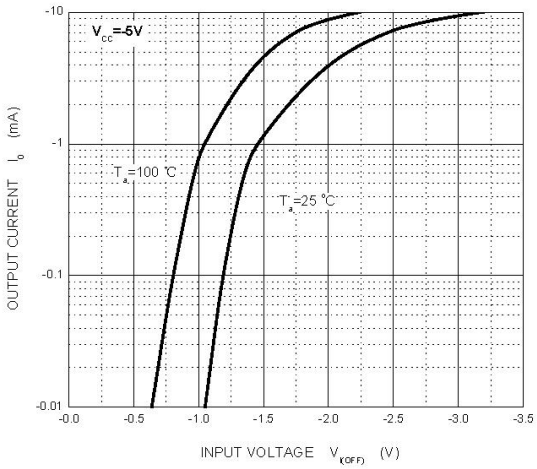
TYPICAL CHARACTERISTICS

PNP Transistor

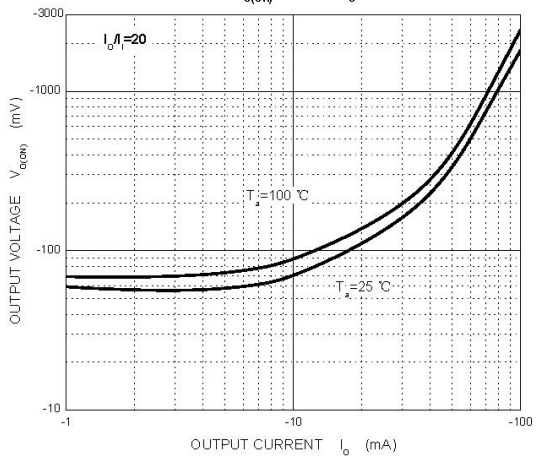
ON Characteristics



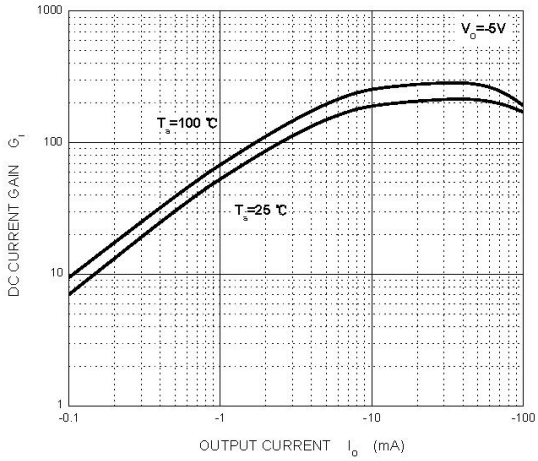
OFF Characteristics



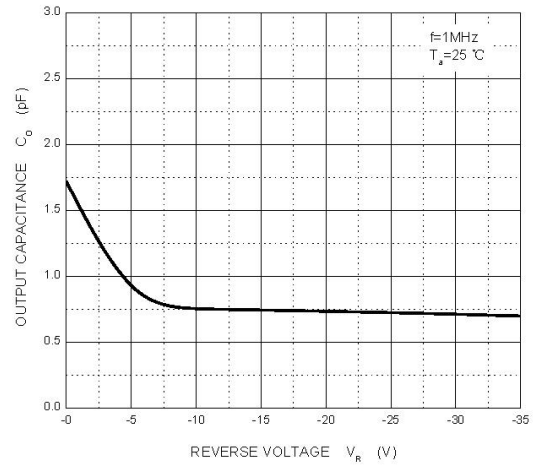
$V_{O(ON)}$ —— I_O



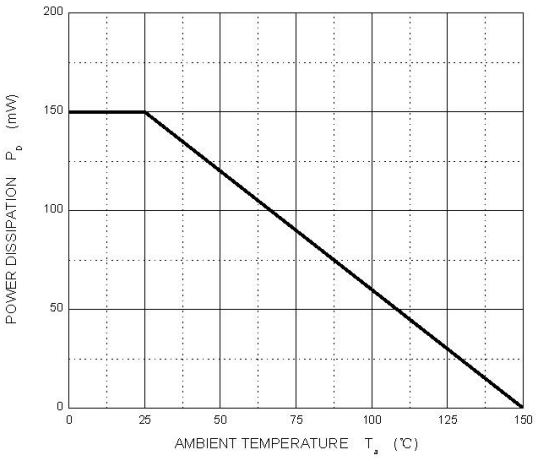
G_I —— I_O



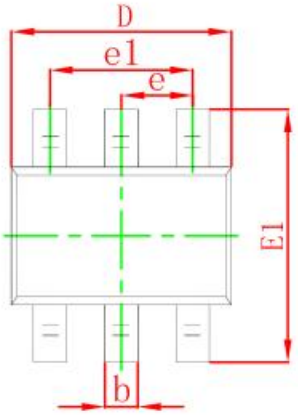
C_O —— V_R

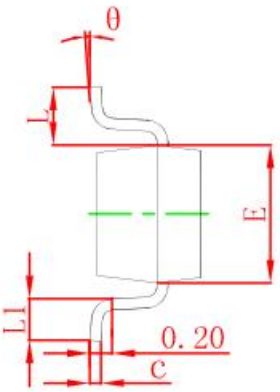


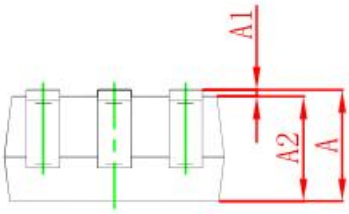
P_D —— T_a



SOT-363 PACKAGE OUTLINE DIMENSIONS

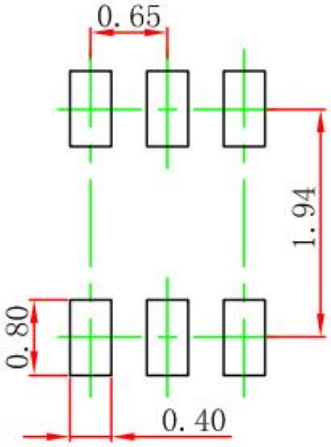






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-363 SUGGESTED PAD LAYOUT

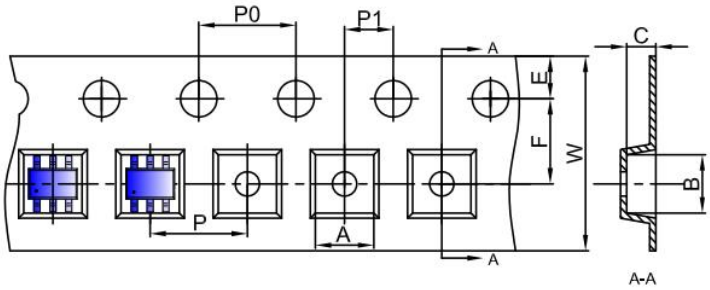


Note:

1. Controlling dimension in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purpose only.

SOT-363 TAPE AND REEL

SOT-363 Embossed Carrier Tape

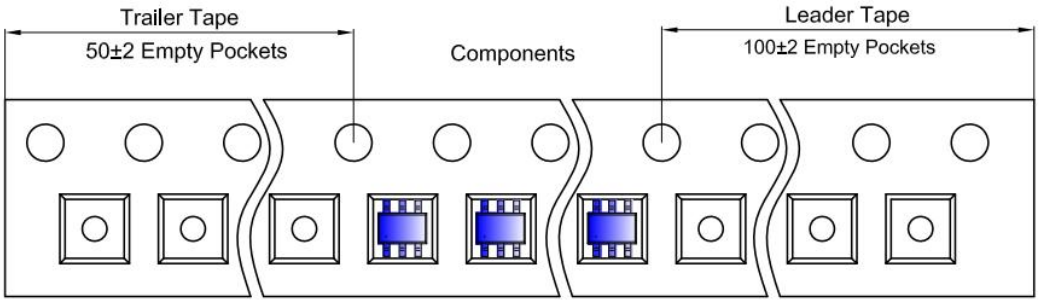


Packaging Description:

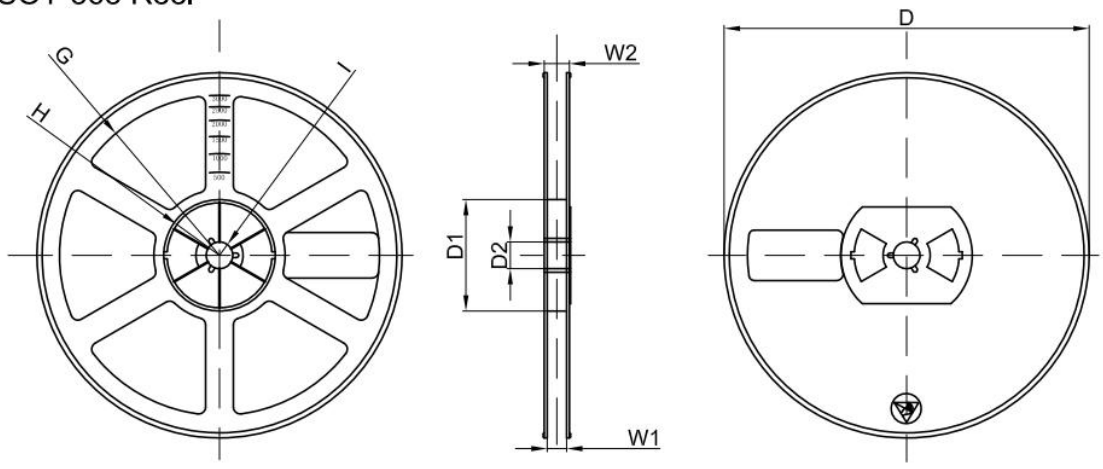
SOT-363 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-363	2.25	2.55	1.20	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-363 Tape Leader and Trailer



SOT-363 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

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JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.
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