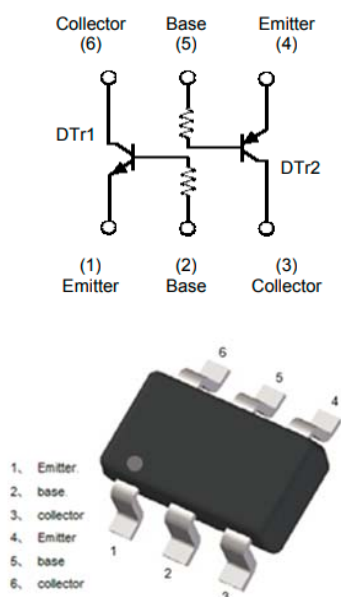


Dual NPN+PNP Digital Transistors (Built-in Resistors)



Features

- Moisture sensitivity level 1
- General switching and amplification
- Surface mount package ideally suited for automatic insertion

Mechanical data

- **Package:** SOT-363
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

Application

- Signal amplification
- Switching circuit
- Marking code : D19

■ Maximum Ratings ($T_a=25^\circ\text{C}$ Unless otherwise specified)

DTr1:NPN

Item	Symbol	Unit	Conditions	Value
Collector-base voltage	V_{CBO}	V		50
Collector-emitter voltage	V_{CEO}	V		50
Emitter-base voltage	V_{EBO}	V		5
Collector current	I_C	mA		100
Power dissipation	P_D	mW		150
Operation junction temperature	T_J	$^\circ\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^\circ\text{C}$		-55 to +150

DTr1:PNP

Item	Symbol	Unit	Conditions	Value
Collector-base voltage	V_{CBO}	V		-50
Collector-emitter voltage	V_{CEO}	V		-50
Emitter-base voltage	V_{EBO}	V		-5
Collector current	I_C	mA		-100
Power dissipation	P_D	mW		150
Operation junction temperature	T_J	$^\circ\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^\circ\text{C}$		-55 to +150



UMD19N

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

DTr1:NPN

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base voltage	V _{CBO}	V	I _C =1mA	50		
Collector-emitter voltage	V _{CEO}	V	I _C =1mA	50		
Emitter-base voltage	V _{EBO}	V	I _E =50μA	5		
Collector-base cut-off current	I _{CBO}	μA	V _{CB} =50V			0.5
Emitter-base cut-off current	I _{EBO}	μA	V _{EB} =5V			0.5
DC current gain	h _{FE}		V _{CE} =5V, I _C =1mA	100		600
Input resistance	R _i	kΩ		15.4	22	28.6
Collector-emitter saturation voltage	V _{CE(sat)}	V	I _C =10mA, I _B =0.5mA			0.3
Transition frequency	f _T	MHz	V _{CE} =10V, I _E =5mA, f=100MHz		250	

DTr2:PNP

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base voltage	V _{CBO}	V	I _C =-50μA	-50		
Collector-emitter voltage	V _{CEO}	V	I _C =-1mA	-50		
Emitter-base voltage	V _{EBO}	V	I _E =-50μA	-5		
Collector-base cut-off current	I _{CBO}	μA	V _{CB} =-50V			-0.5
Emitter-base cut-off current	I _{EBO}	μA	V _{EB} =-4V			-0.5
DC current gain	h _{FE}		V _{CE} =-5V, I _C =-1mA	100		600
Input resistance	R _i	kΩ		15.4	22	28.6
Collector-emitter saturation voltage	V _{CE(sat)}	V	I _C =-5mA, I _B =-0.5mA			-0.3
Transition frequency	f _T	MHz	V _{CE} =-10V, I _E =5mA, f=100MHz		250	

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJA} ⁽¹⁾	°C/W	834
Thermal resistance, junction-to-case	R _{θJC} ⁽¹⁾	°C/W	667

Note: (1) Device mounted on PCB, single-sided copper, with standard footprint

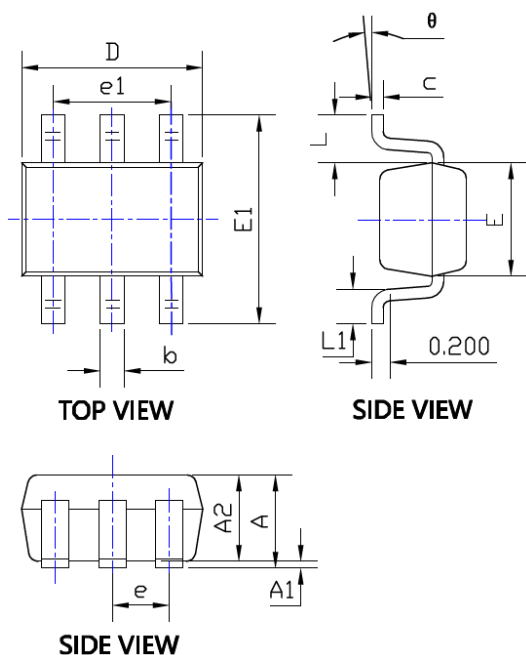
■ Ordering Information

Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
UMD19N	F2	Approximate 0.009	3000	30000	120000	7" reel
UMD19N	F3	Approximate 0.009	10000	/	210000	7" reel



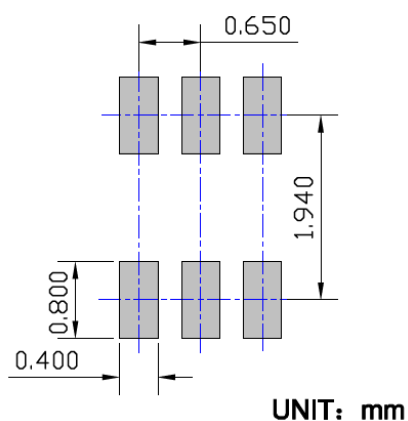
UMD19N

■ Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.014	0.150	0.350
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°

■ Suggested Pad Layout





UMD19N

Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function, or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.21yangjie.com](http://www.21yangjie.com) , or consult your nearest Yangjie's sales office for further assistance.