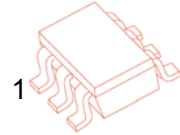**Product specification**

Digital transistors(built-in resistors)
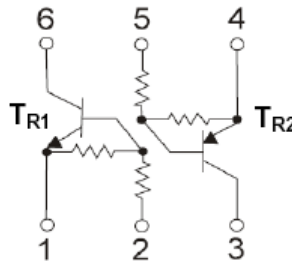
SOT-363

UMD15N   DIGITAL TRANSISTOR (NPN+PNP)

FEATURES

- Both the DTC143E chip and DTA143E chip in a package
- Mounting possible with SOT-363 automatic mounting machines
- Transistor elements are independent, eliminating interference
- Mounting cost and area be cut in half

Marking: D15

Equivalent circuit

T_{R1} **Absolute maximum ratings (Ta=25℃)**

Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-10~30	V
Output current	I_O	100	mA
	$I_{C(MAX)}$	100	
Power dissipation	Pd	150	mW
Junction temperature	Tj	150	℃
Storage temperature	Tstg	-55~150	℃

T_{R1} **Electrical characteristics (Ta=25℃)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Input voltage	$V_{I(off)}$	0.5			V	V_{CC}=5V, I_O=100µA
	$V_{I(on)}$			3		V_O=0.3V, I_O=20mA
Output voltage	$V_{O(on)}$			0.3	V	I_O/I_I=10mA/0.5mA
Input current	I_I			1.8	mA	V_I=5V
Output current	$I_{O(off)}$			0.5	µA	V_{CC}=50V, V_I=0
DC current gain	G_I	20				V_O=5V, I_O=10mA
Input resistance	R_1	3.29		6.11	KΩ	-
Resistance ratio	R_2/R_1	0.8		1.2		-
Transition frequency	f_T		250		MHz	V_O=10V, Io=5mA, f=100MHz

T$_{R2}$ Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Value	Unit
Supply voltage	V$_{CC}$	-50	V
Input voltage	V$_{IN}$	-30~10	V
Output current	I$_O$	-100	mA
	I$_{C(MAX)}$	-100	
Power dissipation	Pd	150	mW
Junction temperature	Tj	150	℃
Storage temperature	Tstg	-55~150	℃

T$_{R2}$ Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Input voltage	V$_{I(off)}$	-0.5			V	V$_{CC}$=-5V, I$_O$=-100μA
	V$_{I(on)}$			-3		V$_O$=-0.3V, I$_O$=-20mA
Output voltage	V$_{O(on)}$			-0.3	V	I$_O$/I$_I$=-10mA/-0.5mA
Input current	I$_I$			-1.8	mA	V$_I$=-5V
Output current	I$_{O(off)}$			-0.5	μA	V$_{CC}$=-50V, V$_I$=0
DC current gain	G$_I$	30				V$_O$=-5V, I$_O$=-10mA
Input resistance	R$_1$	3.29		6.11	KΩ	-
Resistance ratio	R$_2$/R$_1$	0.8		1.2		-
Transition frequency	f$_T$		250		MHz	V$_O$=-10V, I$_O$=-5mA, f=100MHz