

## SOT-363 Plastic-Encapsulate Transistors

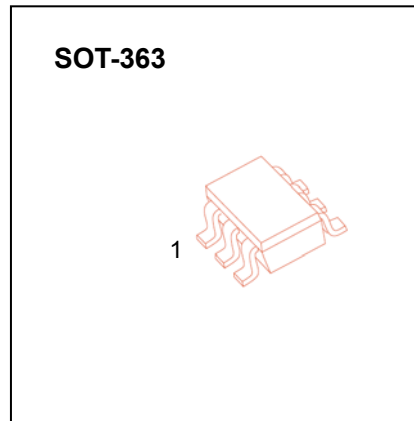
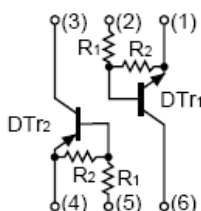
**UMD12N** General purpose transistors (dual transistors)

**FEATURES**

- Both the DTC144E chip and DTA144E 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: D12**

**Equivalent circuit**



**T<sub>R1</sub> Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Value	Unit
Supply voltage	$V_{CC}$	50	V
Input voltage	$V_{IN}$	-10~40	V
Output current	$I_O$	30	mA
	$I_{C(MAX)}$	100	
Power dissipation	$P_d$	150	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55~150	°C

**T<sub>R1</sub> Electrical characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	0.5			V	$V_{CC}=5V, I_O=100\mu A$
	$V_{I(on)}$			3		$V_O=0.3V, I_O=2mA$
Output voltage	$V_{O(on)}$		0.1	0.3	V	$I_O/I_I=10mA/0.5mA$
Input current	$I_I$			0.18	mA	$V_I=5V$
Output current	$I_{O(off)}$			0.5	$\mu A$	$V_{CC}=50V, V_I=0$
DC current gain	$G_I$	68				$V_O=5V, I_O=5mA$
Input resistance	$R_1$	32.9	47	61.1	K $\Omega$	-
Resistance ratio	$R_2/R_1$	0.8	1	1.2		-
Transition frequency	$f_T$		250		MHz	$V_{CE}=10V, I_E=-5mA, f=100MHz$

T<sub>R2</sub> Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Value	Unit
Supply voltage	V <sub>CC</sub>	-50	V
Input voltage	V <sub>IN</sub>	-40~10	V
Output current	I <sub>O</sub>	-30	mA
	I <sub>C(MAX)</sub>	-100	
Power dissipation	Pd	150	mW
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55~150	°C

T<sub>R2</sub> Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Input voltage	V <sub>I(off)</sub>	-0.5			V	V <sub>CC</sub> =-5V, I <sub>O</sub> =-100μA
	V <sub>I(on)</sub>			-3		V <sub>O</sub> =-0.3V, I <sub>O</sub> =-2mA
Output voltage	V <sub>O(on)</sub>		-0.1	-0.3	V	I <sub>O</sub> /I <sub>I</sub> =-10mA/-0.5mA
Input current	I <sub>I</sub>			-0.18	mA	V <sub>I</sub> =-5V
Output current	I <sub>O(off)</sub>			-0.5	μA	V <sub>CC</sub> =-50V, V <sub>I</sub> =0
DC current gain	G <sub>I</sub>	68				V <sub>O</sub> =-5V, I <sub>O</sub> =-5mA
Input resistance	R <sub>1</sub>	32.9	47	61.1	KΩ	-
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>	0.8	1	1.2		-
Transition frequency	f <sub>T</sub>		250		MHz	V <sub>CE</sub> =-10V, I <sub>E</sub> =5mA, f=100MHz