



UMD10N

Digital Transistor

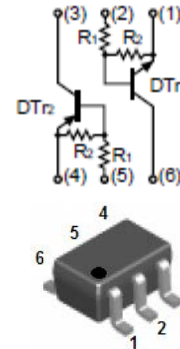


Features

- Both the DTC123J and DTA123J in SOT-363 Package.
- Reduces Board Space.
- Reduces Component Count.
- Surface Mount Package Suited for Automated Assembly.

Mechanical Data

- Case: SOT-363.
- Molding compound, UL flammability classification rating 94V-0.
- Terminals: Matte tin plated leads, solderable per MIL-STD-202, Method 208.



SOT-363

Ordering Information

Part Number	Package	Shipping	Marking Code
UMD10N	SOT-363	3000/Tape&Reel	D10

Maximum Ratings (@T_A=25°C unless otherwise specified)

Symbol	Parameter	Value		Units
		Tr1	Tr2	
MAXIMUM RATINGS				
V _{CC}	Supply Voltage	50	-50	V
V _{IN}	Input Voltage	-5 to +12	+5 to -12	V
I _O	Output Current	100	-100	mA
I _C	Collector Current	100	-100	mA
Thermal Characteristic				
P _{Tot}	Total Power Dissipation, T _a ≤25℃	0.2		W
T _J	Junction Temperature	-55 to +150		℃
T _{STG}	Storage Temperature Range	-55 to +150		℃

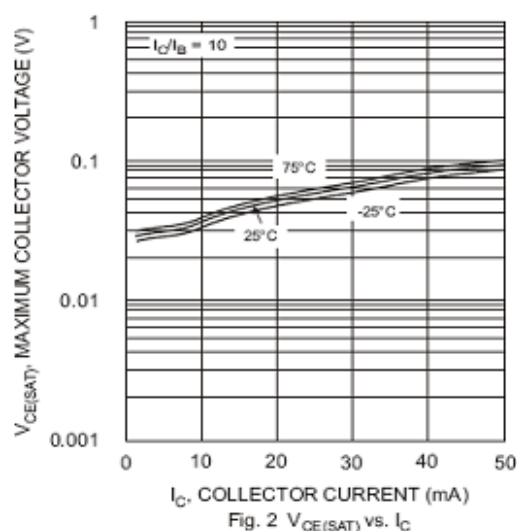
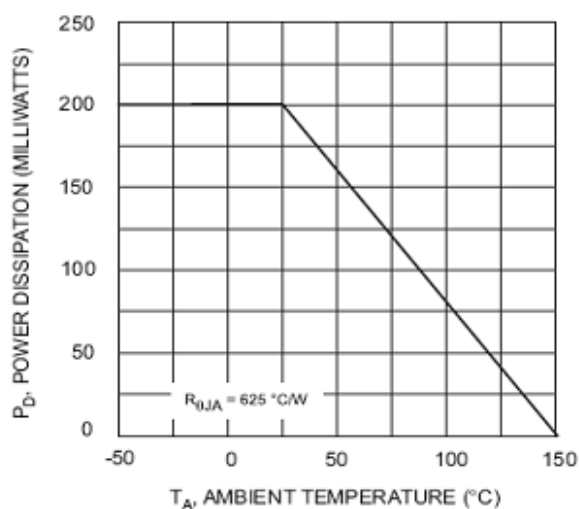
Electrical Characteristics-TR1 (@TA=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$	0.5	-	-	V
	$V_{I(on)}$	$V_O=0.3V, I_O=5mA$	-	-	1.1	V
Output Voltage	$V_{O(on)}$	$I_O=5mA, I_I=0.25mA$	-	0.1	0.3	V
Input Current	I_I	$V_I=5V$	-	-	3.6	mA
Output Current	$I_{O(off)}$	$V_{CC}=50V, V_I=0V$	-	-	0.5	μA
DC Current Gain	G_I	$V_O=5V, I_O=10mA$	80	-	-	-
Input Resistor	R_1		1.54	2.2	2.86	k Ω
Resistance ratio	R_2/R_1		17	21	26	
Resistance Ratio Tolerance	$\Delta R_2/R_1$		-20	-	20	%
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_E=5mA, f=100MHz$	-	250	-	MHz

Electrical Characteristics-TR2 (@TA=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(off)}$	$V_{CC}=-5V, I_O=-100\mu A$	-0.5	-	-	V
	$V_{I(on)}$	$V_O=-0.3V, I_O=-5mA$	-	-	-1.1	V
Output Voltage	$V_{O(on)}$	$I_O=-5mA, I_I=-0.25mA$	-	-0.1	-0.3	V
Input Current	I_I	$V_I=-5V$	-	-	-3.6	mA
Output Current	$I_{O(off)}$	$V_{CC}=-50V, V_I=0V$	-	-	-0.5	μA
DC Current Gain	G_I	$V_O=-5V, I_O=-10mA$	80	-	-	-
Input Resistor	R_1		1.54	2.2	2.86	k Ω
Resistance ratio	R_2/R_1		17	21	26	
Resistance Ratio Tolerance	$\Delta R_2/R_1$		-20	-	20	%
Gain-Bandwidth Product	f_T	$V_{CE}=-10V, I_E=5mA, f=100MHz$	-	250	-	MHz

Ratings and Characteristic Curves-TR1 (TA=25°C unless otherwise noted)



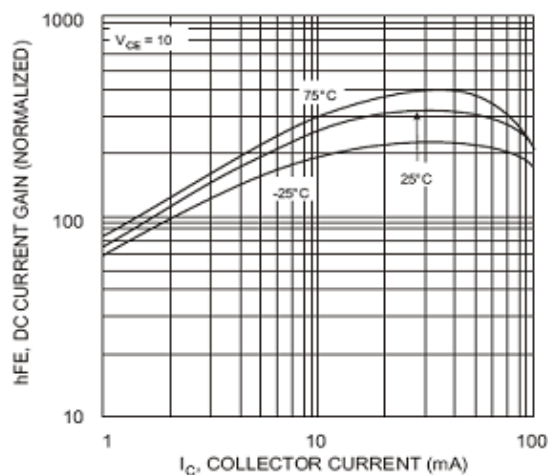


Fig. 3 DC Current Gain

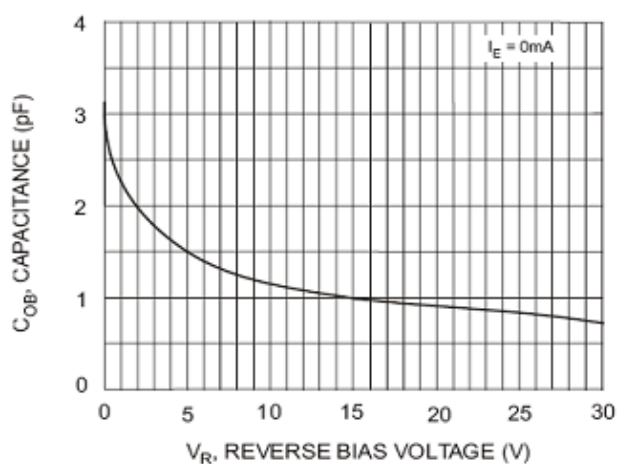


Fig. 4 Output Capacitance

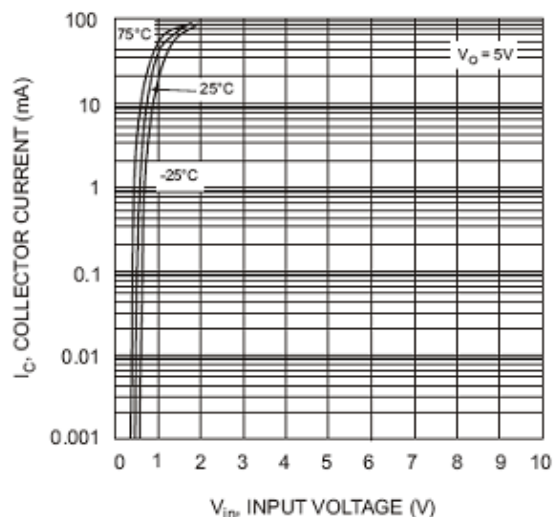


Fig. 5 Collector Current Vs. Input Voltage

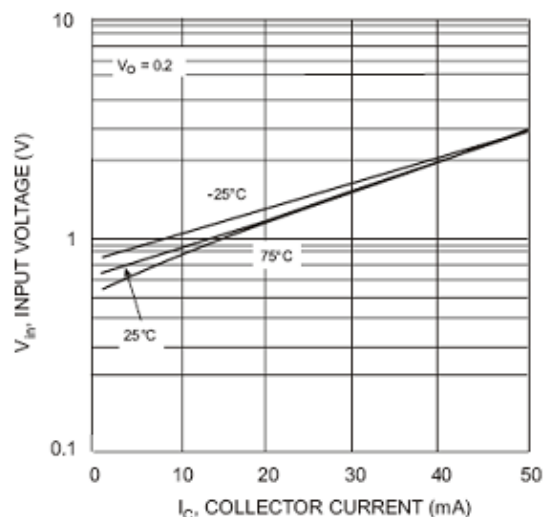


Fig. 6 Input Voltage vs. Collector Current

Ratings and Characteristic Curves-TR2 ($T_A=25^\circ\text{C}$ unless otherwise noted)

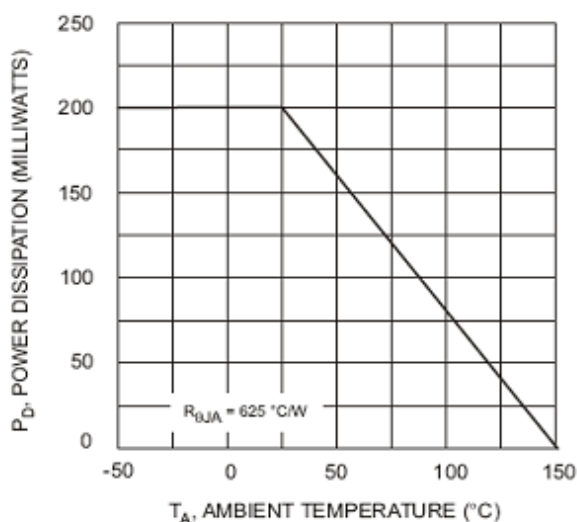


Fig. 1 Derating Curve

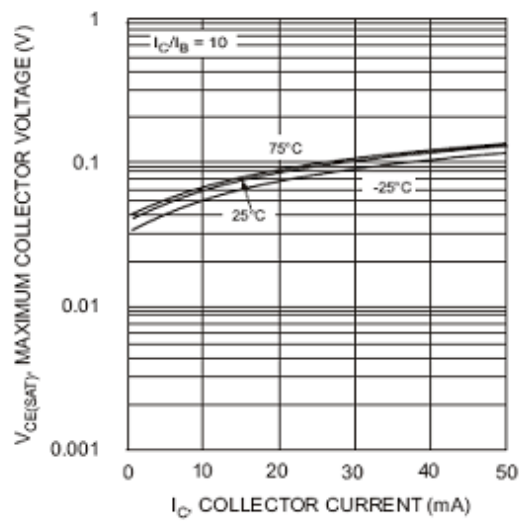
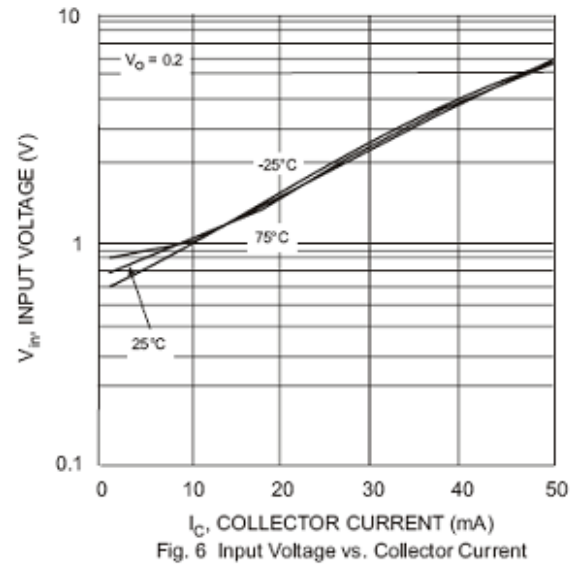
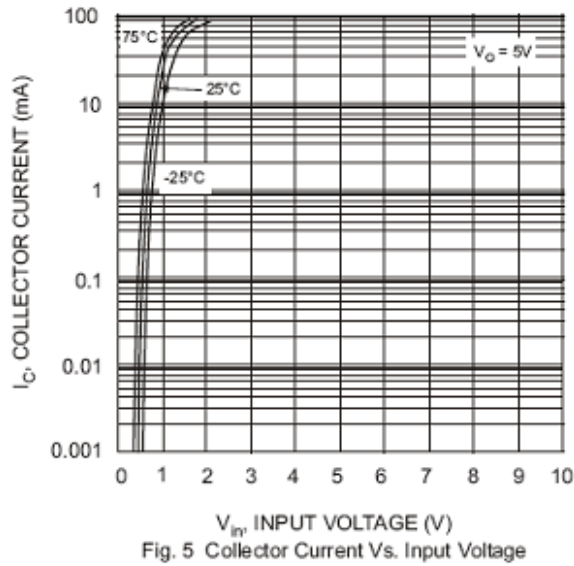
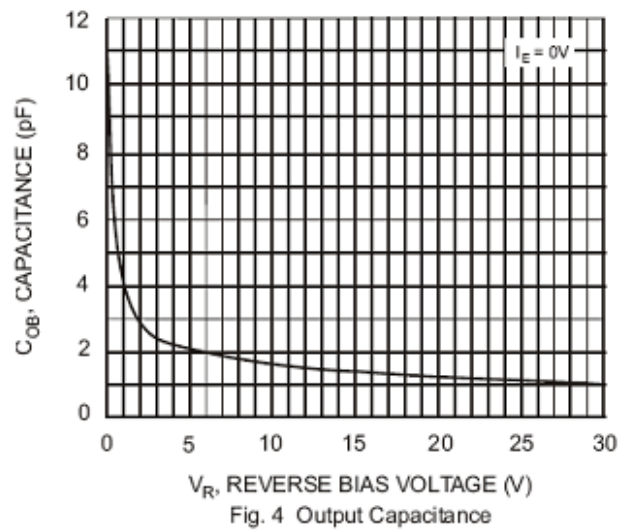
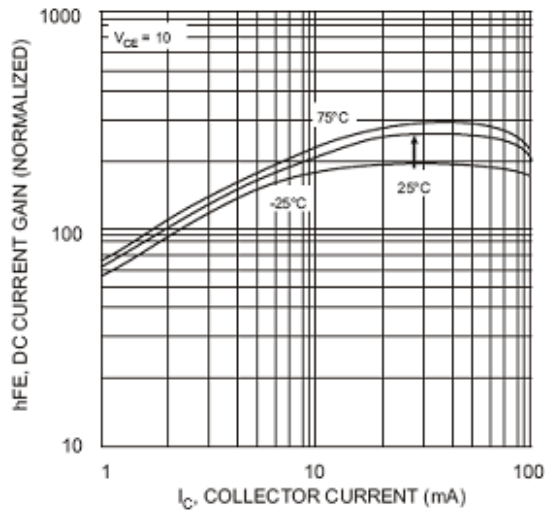


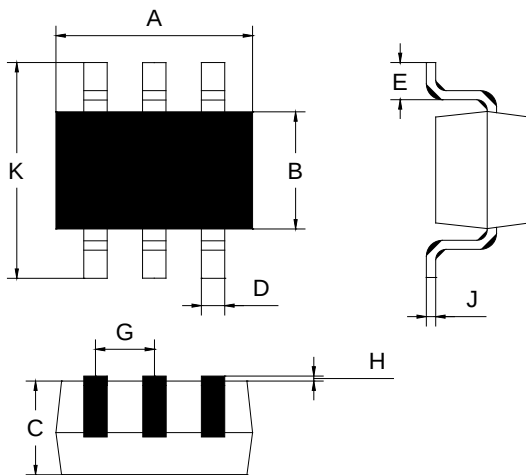
Fig. 2 $V_{CE(SAT)}$ vs. I_C





Package Outline Dimensions (unit: mm)

SOT-363



SOT-363		
Dim	Min	Max
A	2.00	2.20
B	1.15	1.35
C	0.85	1.05
D	0.15	0.35
E	0.25	0.40
G	0.60	0.70
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40

SOLDERING FOOTPRINT (unit: mm)

