

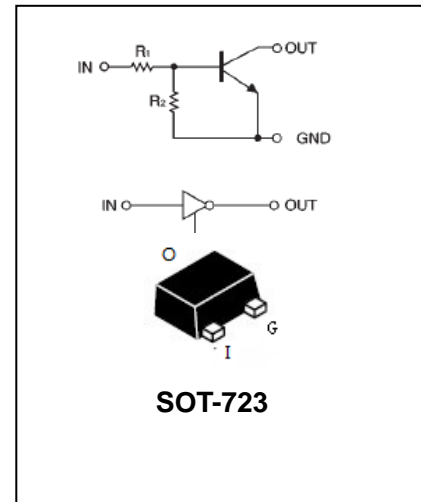


FEATURES

- Epitaxial planar die construction.
- Built-in biasing resistors, $R_1=R_2$.
- Also available in lead free version.

APPLICATIONS

- The NPN style digital transistor.



ORDERING INFORMATION

Type No.	Marking	Package Code
DTC114EM	24	SOT-723
DTC124EM	25	SOT-723
DTC143EM	23	SOT-723
DTC144EM	26	SOT-723
DTC115EM	29	SOT-723

MAXIMUM RATING @ $T_a=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{CC}	Supply Voltage	50	V
V_{IN}	Input Voltage	DTC114EM	-10 to +40
		DTC124EM	-10 to +40
		DTC143EM	-10 to +30
		DTC144EM	-10 to +40
		DTC115EM	-10 to +40
I_o	Output Current	DTC114EM	50
		DTC124EM	30
		DTC143EM	100
		DTC144EM	30
		DTC115EM	100
$I_C(\text{Max.})$	Output current	ALL	100
P_D	Power Dissipation	100	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air	1250	$^{\circ}\text{C}/\text{W}$
T_J, T_{STG}	Operating and Storage and Temperature Range	-55 to +150	$^{\circ}\text{C}$



ELECTRICAL CHARACTERISTICS @ 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	1.1	-	
Input Voltage	DTC114EM DTC124EM DTC143EM DTC144EM DTC115EM	$V_{I(on)}$ $V_o=0.3V, I_o=10mA$ $V_o=0.2V, I_o=5mA$ $V_o=0.3V, I_o=20mA$ $V_o=0.3V, I_o=2mA$ $V_o=0.3V, I_o=1mA$	-	1.9	3	V
Output Voltage	DTC114EM DTC124EM DTC143EM DTC144EM DTC115EM	$V_{O(on)}$ $I_o/I_i=10mA/0.5mA$ $I_o/I_i=10mA/0.5mA$ $I_o/I_i=10mA/0.5mA$ $I_o/I_i=10mA/0.5mA$ $I_o/I_i=5mA/0.25mA$	-	0.1	0.3	V
Input Current	DTC114EM DTC124EM DTC143EM DTC144EM DTC115EM	I_i $V_i=5V$	-	-	0.88 0.36 1.8 0.18 0.15	mA
Output Current		$I_{O(off)}$ $V_{CC}=50V, V_i=0V$	-	-	0.5	μA
DC Current Gain	DTC114 EM DTC124EM DTC143EM DTC144EM DTC115EM	G_i $V_o=5V, I_o=5mA$ $V_o=5V, I_o=5mA$ $V_o=5V, I_o=10mA$ $V_o=5V, I_o=5mA$ $V_o=5V, I_o=5mA$	30 56 20 68 82	-	-	
Input Resistor	DTC114EM DTC124EM DTC143EM DTC144EM DTC115EM	$R_1(R_2)$	7 15.4 3.29 32.9 70	10 22 4.7 47 100	13 28.6 6.11 61.1 130	k Ω
Resistance Ratio		R_2/R_1	0.8	1	1.2	
Gain-Bandwidth Product		f_T $V_{CE}=10V, I_E=-5mA,$ $f=100MHz$	-	250	-	MHz



TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

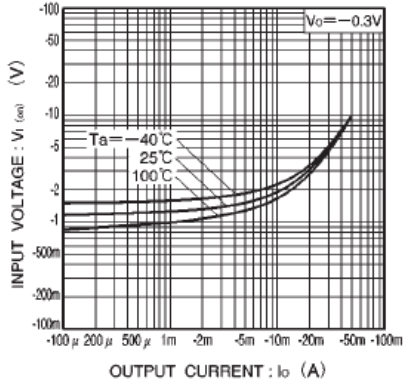


Fig.1 Input voltage vs. output current (ON characteristics)

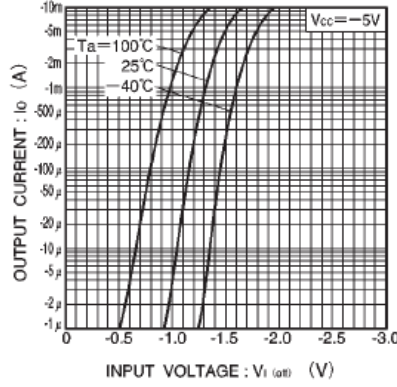


Fig.2 Output current vs. input voltage (OFF characteristics)

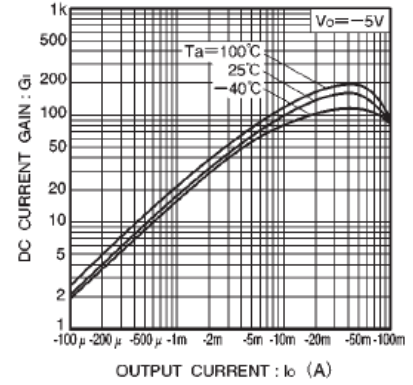


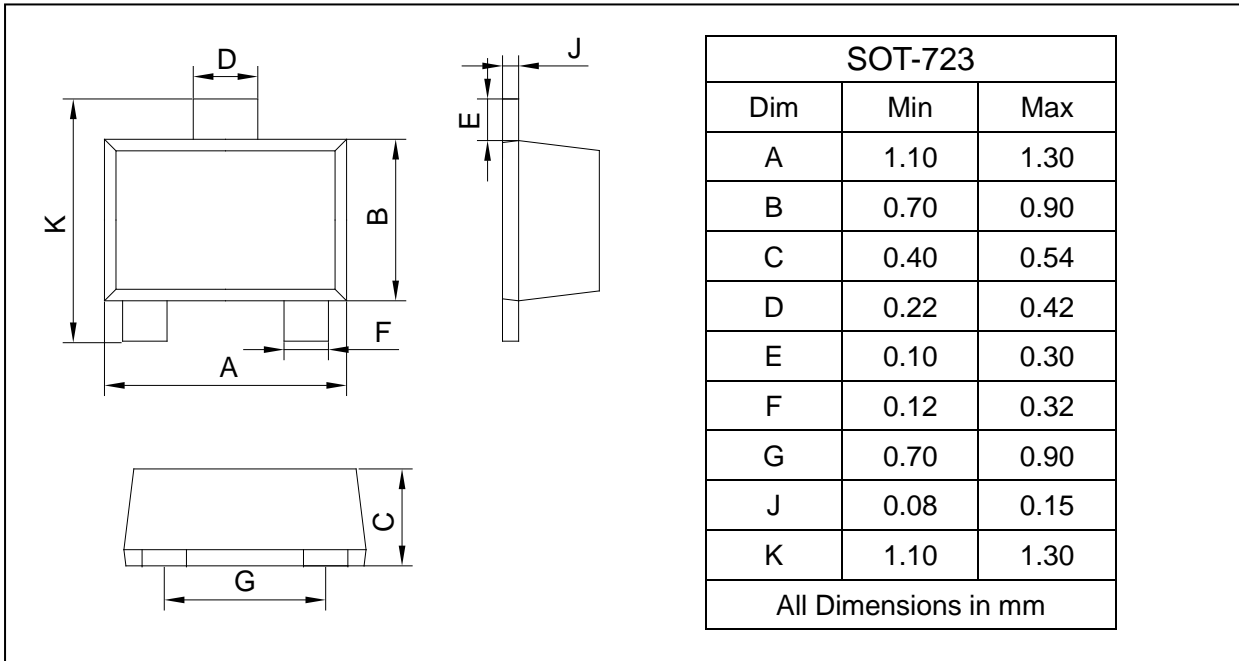
Fig.3 DC current gain vs. output current



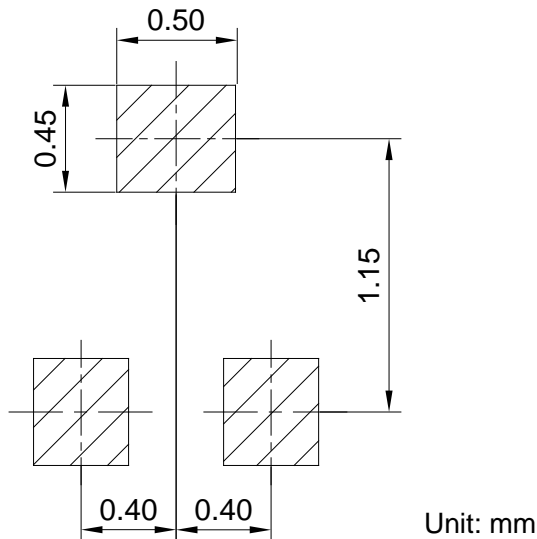
PACKAGE OUTLINE

Plastic surface mounted package

SOT-723



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
DTC114EM/124EM/143EM/144EM/115EM	SOT-723	3000pcs / Tape & Reel