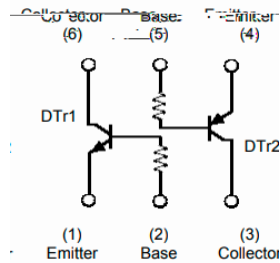


Dual NPN+PNP Digital Transistors (Built-in Resistors)



Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

Application

- Signal amplification
- Switching circuit

Mechanical data

Package SOT-363

Terminals Tin plated leads, solderable per J-STD-002 and JESD22-B102

Maximum Ratings ($T_a=25$ Unless otherwise specified)

DTR1-NPN

Item	Symbol	Unit	Conditions	Value
Device marking code				D6
Collector-base voltage	V_{CBO}	V	$I_C=50\mu A$	50
Collector-emitter voltage	V_{CEO}	V	$I_C=1mA$	50
Emitter-base voltage	V_{EBO}	V	$I_E=50\mu A$	5
Collector current	I_C	mA		100
Power dissipation	P_D	mW		150
Junction temperature	T_J			-55 to +150
Storage temperature	T_{STG}			-55 to +150

**DTR2-PNP**

Item	Symbol	Unit	Conditions	Value
Collector-base voltage	V_{CBO}	V	$I_C=-50\mu A$	-50
Collector-emitter voltage	V_{CEO}	V	$I_C=-1mA$	-50
Emitter-base voltage	V_{EBO}	V	$I_E=-50\mu A$	-5
Collector current	I_C	mA		-100
Junction temperature	T_J			-55 to +150
Storage temperature	T_{STG}			-55 to +150

Electrical Characteristics ($T_a=25$ Unless otherwise specified)**DTR1-NPN**

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C=50\mu A$	50		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C=1mA$	50		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=50\mu A$	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_1	k		3.29	4.7	6.11
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 breakdown voltage	$V_{(BR)CBO}$	V	$I_C = -50\mu A$	-50		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C = -1mA$	-50		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E = -50\mu A$	-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_1	k		3.29	4.7	6.11
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	

Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{J-A}^{(1)}$	/W	830
Thermal resistance, junction-to-case	$R_{J-C}^{(1)}$	/W	664

Note:

- 1 Device mounted on PCB, single-sided copper with standard footprint

Characteristics

DTR1-NPN

Fig 1 Static Characteristics

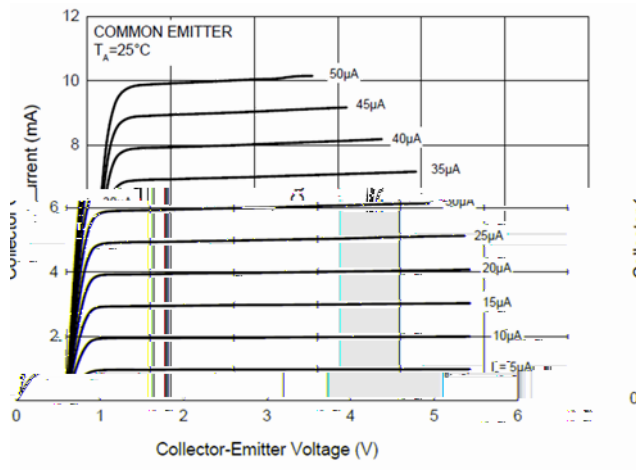


Fig 2 DC Current Gain Characteristics

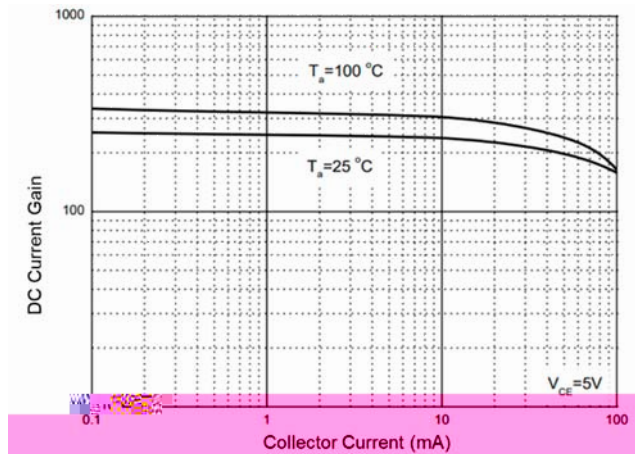


Fig 3 Collector-Emitter Saturation Voltage

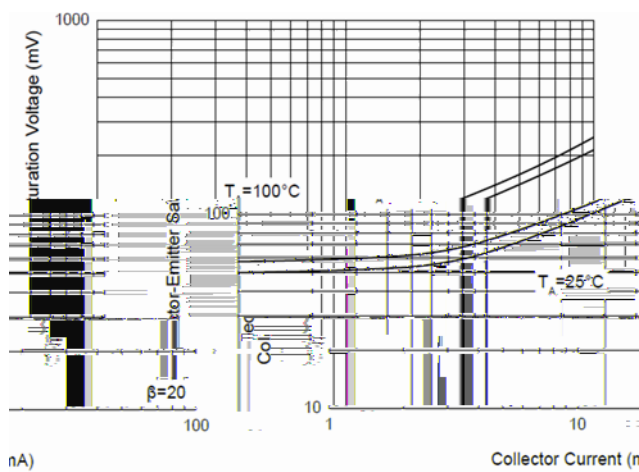
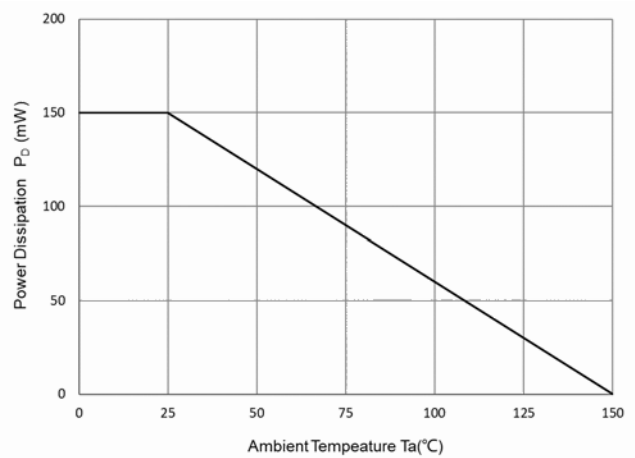


Fig 4 P_D - T_a Curve





DTR2-PNP

Fig 4 Static Characteristics

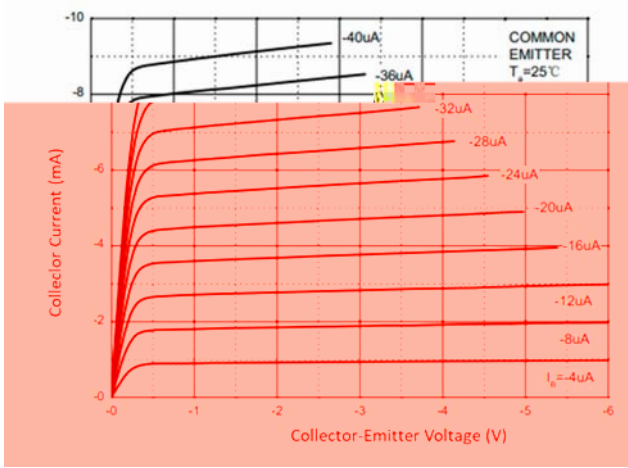


Fig 5 DC Current Gain Characteristics

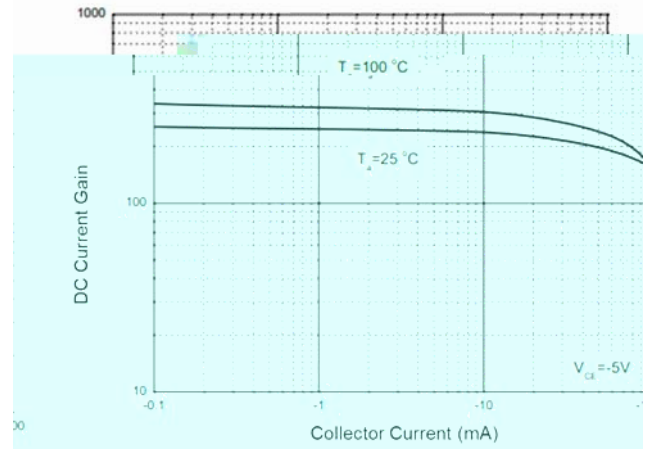
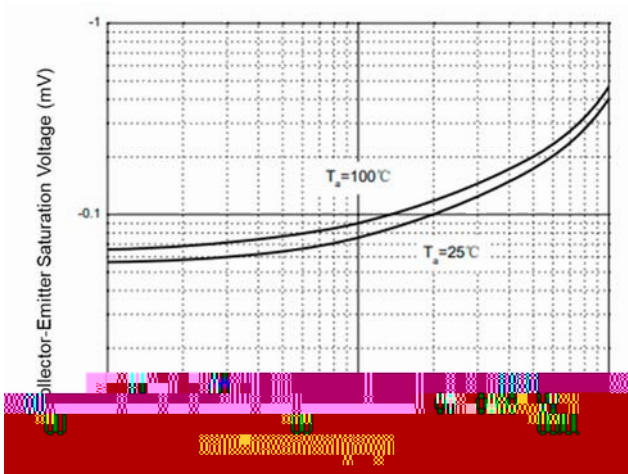


Fig 6 Collector-Emitter Saturation Voltage

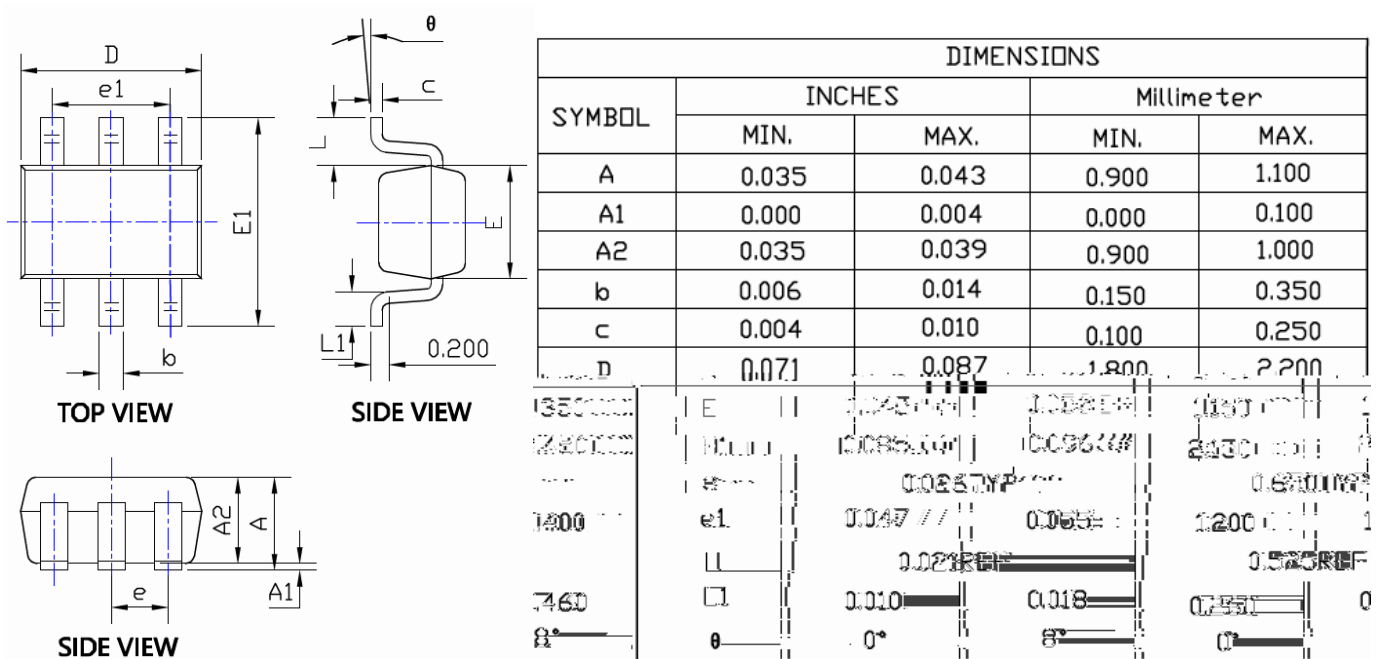




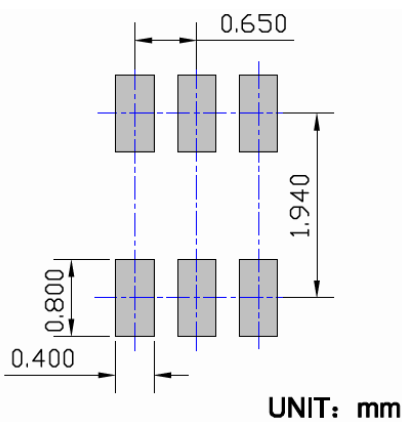
Ordering Information

Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
UMD6N	F2	Approximate 0.009	3000	30000	120000	7" reel
UMD6N	F3	Approximate 0.009	10000	/	210000	7" reel

Outline Dimensions



Suggested Pad Layout





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