

Dual NPN Small Signal Surface Mount Transistor

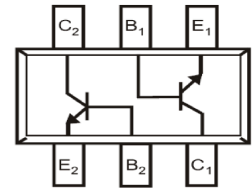


Features:

- Epitaxial planar die construction.
- Ultra-small surface mount package.
- Ideal for low power amplification and switching.

Applications:

- Dual NPN small signal surface mount transistor.



SOT-363

Maximum Rating: @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	
Emitter-Base Voltage	V_{EBO}	6	
Collector Current-Continuous	I_C	600	mA
Power Dissipation	P_D	200	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics: @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Collector-base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	60	-	V
Collector-emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	40	-	
Emitter-base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	6	-	
Collector Cut-off Current	I_{CEX}	$V_{CE} = 35\text{V}, V_{EB(OFF)} = 0.4\text{V}$	-	0.1	μA
Base Cut-off Current	I_{BL}	$V_{CE} = 35\text{V}, V_{EB(OFF)} = 0.4\text{V}$	-	0.1	
DC Current Gain	h_{FE}	$V_{CE} = 1\text{V}, I_C = 0.1\text{mA}$	20	-	-
		$V_{CE} = 1\text{V}, I_C = 1\text{mA}$	40	-	
		$V_{CE} = 1\text{V}, I_C = 10\text{mA}$	80	-	
		$V_{CE} = 1\text{V}, I_C = 150\text{mA}$	100	300	
		$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	40	-	

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Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 150mA$ $I_B = 15mA$ $I_C = 500mA$ $I_B = 50mA$	-	0.4 0.75	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 150mA$ $I_B = 15mA$ $I_C = 500mA$ $I_B = 50mA$	0.75 -	0.95 1.2	
Transition Frequency	f_T	$V_{CE} = 10V$ $I_C = 20mA$ $f = 1MHz$	250		MHz
Output Capacitance	C_{obo}	$V_{CB} = 5V$, $f = 1MHz$, $I_E = 0$	-	6.5	pF
Input Capacitance	C_{ibo}	$V_{EB} = 0.5V$, $f = 1MHz$, $I_C = 0$	-	30	
Delay Time	t_d	$V_{CC} = 30V$, $V_{BE(off)} = 2V$ $I_C = 150mA$, $I_{B1} = 15mA$		15	ns
Rise Time	t_r			20	
Storage Time	t_s	$V_{CC} = 30V$, $I_C = 150mA$ $I_{B1} = I_{B2} = 15mA$		225	
Fall Time	t_f			30	

Typical Characteristics: @ $T_A = 25^\circ C$ unless otherwise specified

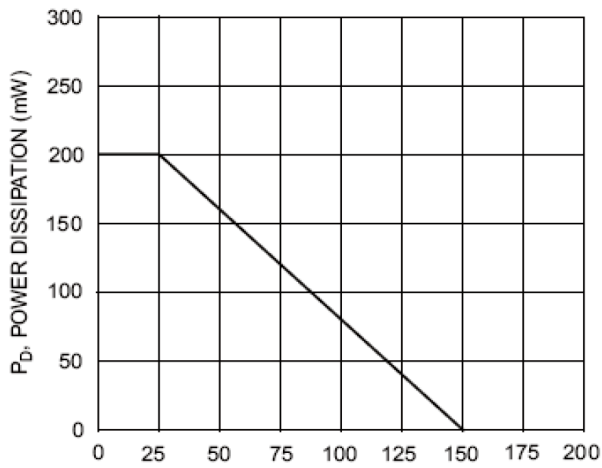


Fig. 1 Max Power Dissipation vs Ambient Temperature

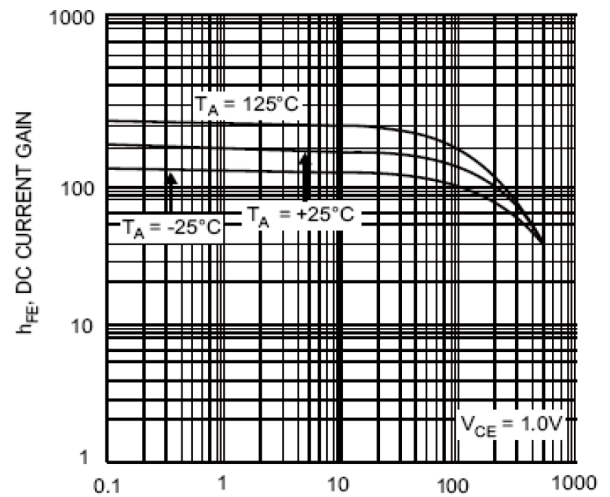


Fig. 2 Typical DC Current Gain vs Collector Current



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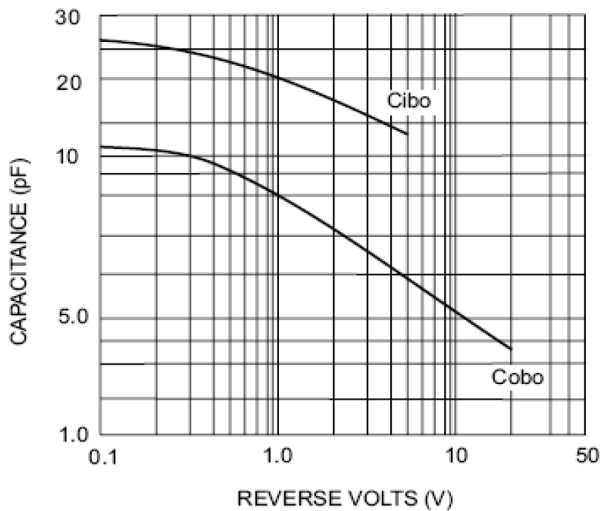


Fig. 3 Typical Capacitance

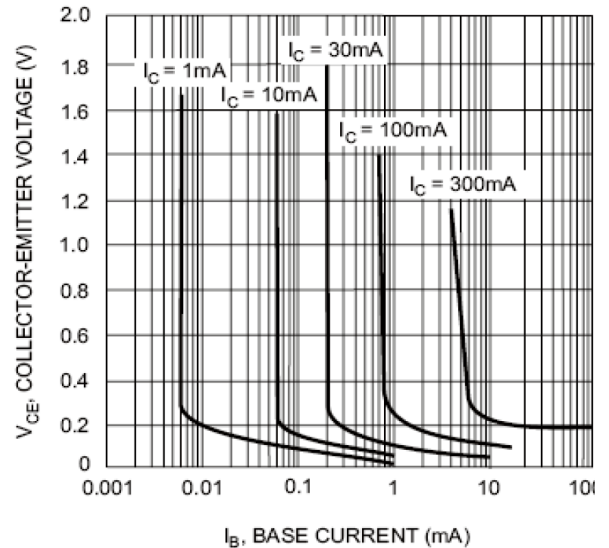


Fig. 4 Typical Collector Saturation Region

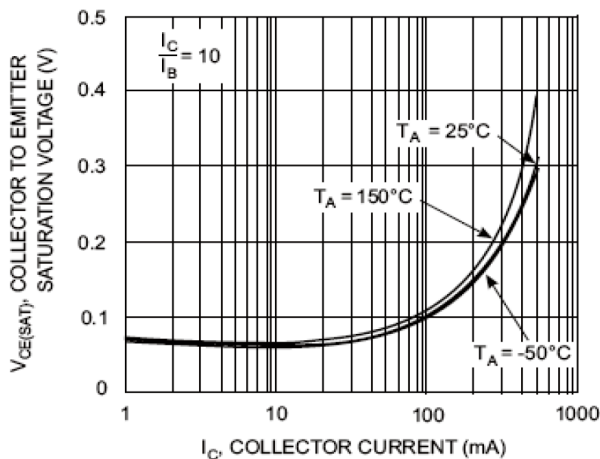


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

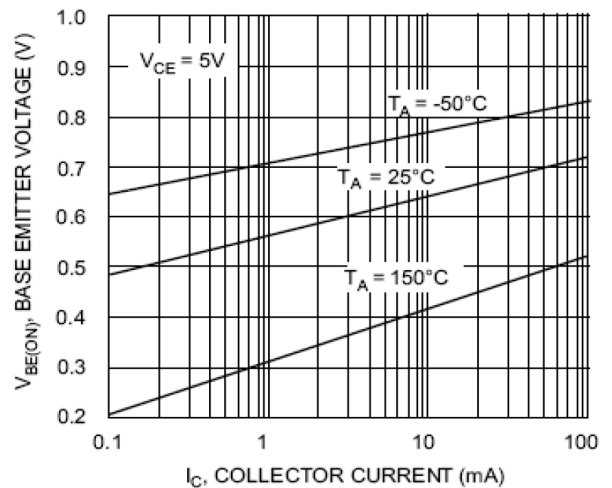


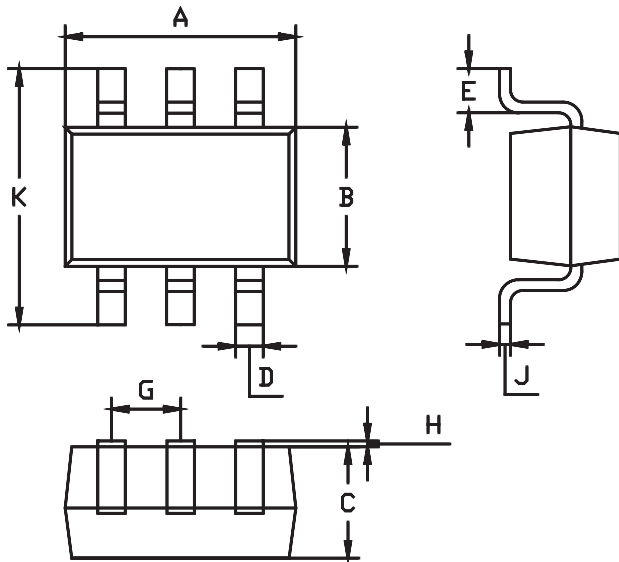
Fig. 6 Base Emitter Voltage vs. Collector Current



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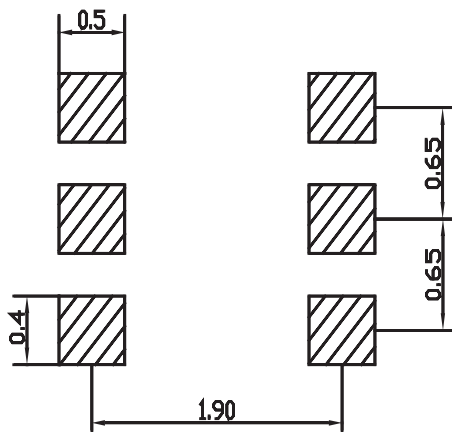


Package Outline:



SOT-363		
Dim	Min.	Max.
A	1.8	2.2
B	1.15	1.35
C	1 Typical	
D	0.10	0.30
E	0.25	0.40
G	0.65 Typical	
H	0.02	0.10
J	0.1 Typical	
K	2.1	2.3
All Dimensions in mm		

Soldering Footprint:



Dimensions : Millimetres

Part Number Table

Description	Part Number
Transistor, Array, Dual NPN, 40V, 600mA, SOT-363	MMDT4401-7-F

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