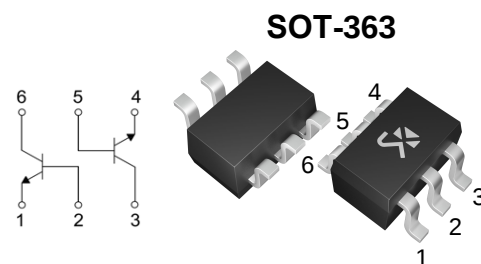


NPN Silicon Epitaxial Planar Transistor

Features

- Epitaxial Planar Die Construction
- Comprehensive PNP Type Available (MMDT5401DW) Ideal for Medium Power Amplification and Switching
- Ultra Small Surface Mount Package



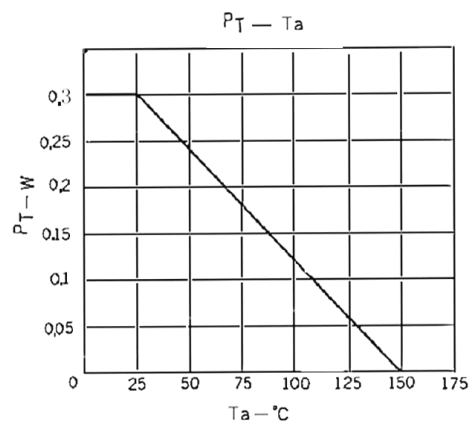
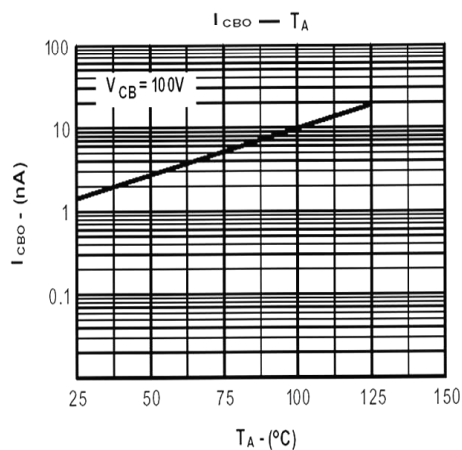
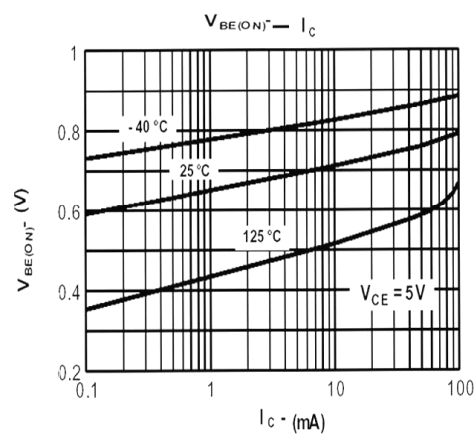
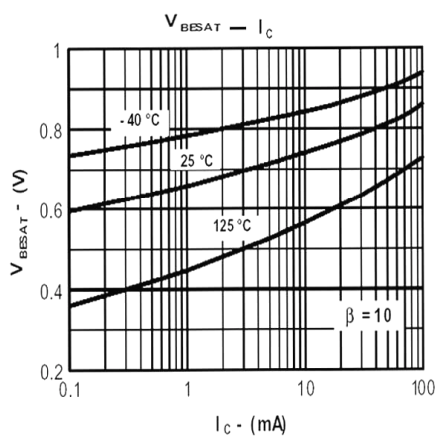
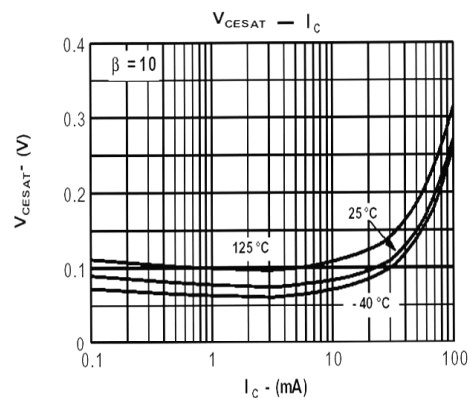
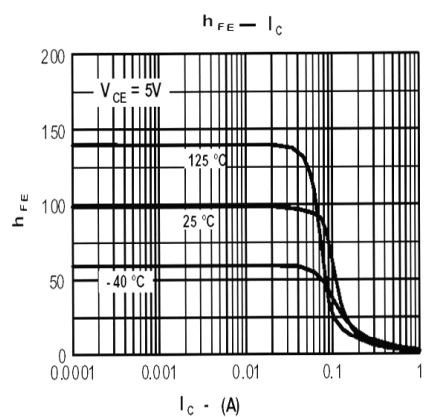
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	180	V
V_{CEO}	Collector-Emitter Voltage	160	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	600	mA
P_C	Collector Power Dissipation	500	mW
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55 to +150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	625	$^{\circ}\text{C}/\text{W}$

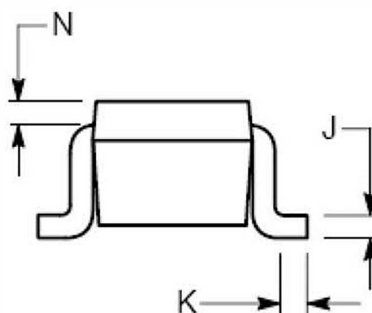
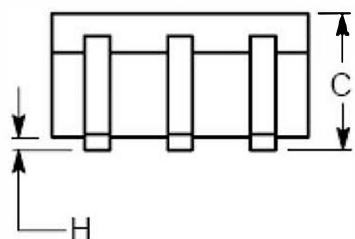
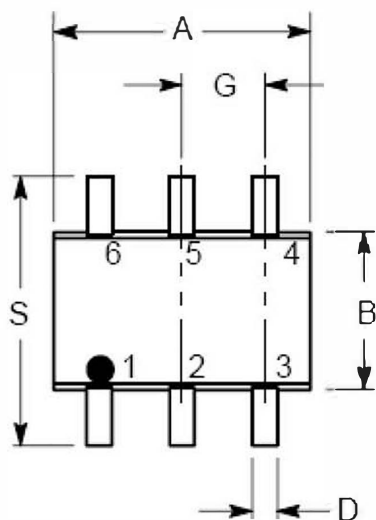
ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$, $I_E=0$	180			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$, $I_B=0$	160			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}$, $I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=120\text{V}$, $I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=6\text{V}$, $I_C=0$			0.1	μA
DC current gain	h_{FE}	$V_{CE}=5\text{V}$, $I_C=1\text{mA}$		190		
DC current gain	h_{FE}	$V_{CE}=5\text{V}$, $I_C=10\text{mA}$			300	
DC current gain	h_{FE}	$V_{CE}=5\text{V}$, $I_C=50\text{mA}$		160		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10\text{mA}$, $I_B=1\text{mA}$		0.06	0.15	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=50\text{mA}$, $I_B=5\text{mA}$		0.09	0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10\text{mA}$, $I_B=1\text{mA}$		0.7	1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=50\text{mA}$, $I_B=5\text{mA}$		0.8	1	V
Transition frequency	f_T	$V_{CE}=10\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$		110		MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$		2.2	5	PF

Electrical Characteristic Curve



SOT-363 Outline Dimension



Symbol	Dimension In Millimeters	
	Min	Max.
A	1.89	2.20
B	1.15	1.35
C	0.80	1.10
D	0.10	0.30
G	0.65 BSC	
H	---	0.10
J	0.10	0.25
K	0.10	0.30
N	0.20 REF	
S	2.00	2.20