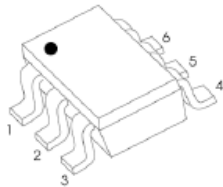
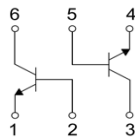


FEATURES

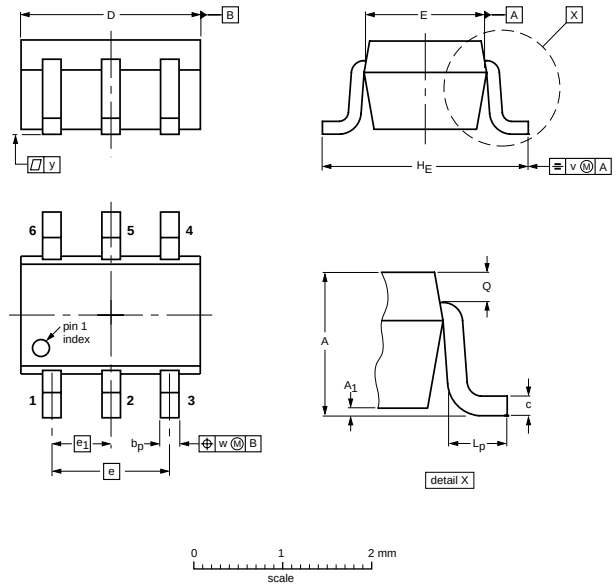
Epitaxial planar die construction
Ideal for low power amplification and switching

MARKING:K6N



SOT-363

SOT-363



0 1 2 mm
scale

DIMENSIONS (mm are the original dimensions)

UNIT	A	A1 max	bp	c	D	E	e	e1	HE	Lp	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	0.2	A
P_C	Collector Power Dissipation	0.2	W
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55-150	$^{\circ}\text{C}$

MMDT3904DW

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=30V, I_E=0$			0.05	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5V, I_C=0$			0.05	μA
Collector cut-off current	I_{CEX}	$V_{CE}=30V, V_{BE(off)}=-3V$			0.05	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=1V, I_C=1mA$	70			
	$h_{FE(2)}$	$V_{CE}=1V, I_C=10mA$	100		300	
	$h_{FE(3)}$	$V_{CE}=1V, I_C=50mA$	60			
	$h_{FE(4)}$	$V_{CE}=1V, I_C=100mA$	30			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=10mA, I_B=1mA$			0.2	V
	$V_{CE(sat)2}$	$I_C=50mA, I_B=5mA$			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=10mA, I_B=1mA$	0.65		0.85	V
	$V_{BE(sat)2}$	$I_C=50mA, I_B=5mA$			0.95	V
Transition frequency	f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300			MHz
Collector output capacitance	C_{ob}	$V_{CB}=5V, I_E=0, f=1MHz$			4	pF
Noise figure	NF	$V_{CE}=5V, I_C=0.1mA, f=1kHz, R_S=1K\Omega$			5	dB
Delay time	t_d	$V_{CC}=3V, V_{BE(off)}=-0.5V$ $I_C=10mA, I_{B1}=-I_{B2}=1mA$			35	nS
Rise time	t_r				35	nS
Storage time	t_s	$V_{CC}=3V, I_C=10mA$ $I_{B1}=-I_{B2}=1mA$			200	nS
Fall time	t_f				50	nS

RATING AND CHARACTERISTIC CURVES (MMDT3904DW)

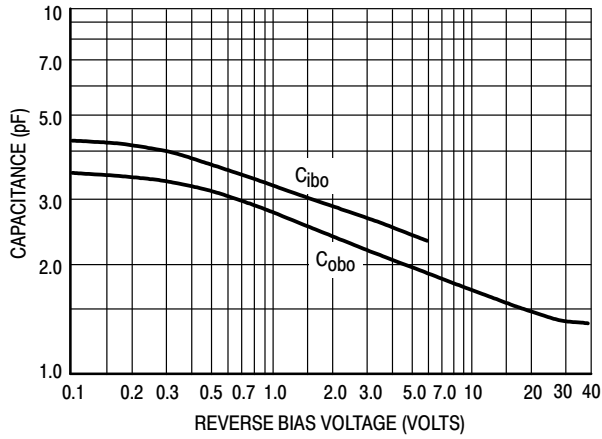


Figure 1. Capacitance

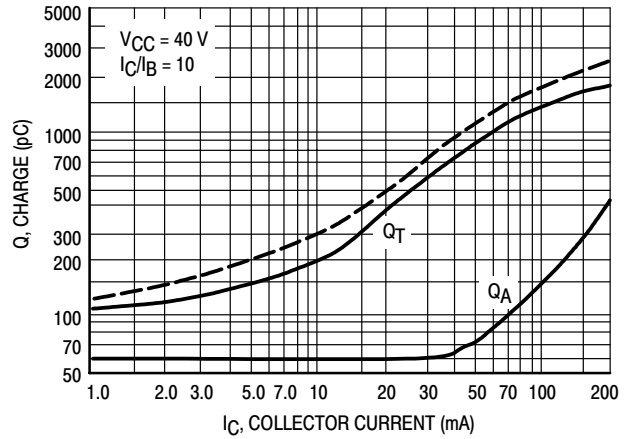


Figure 2. Charge Data

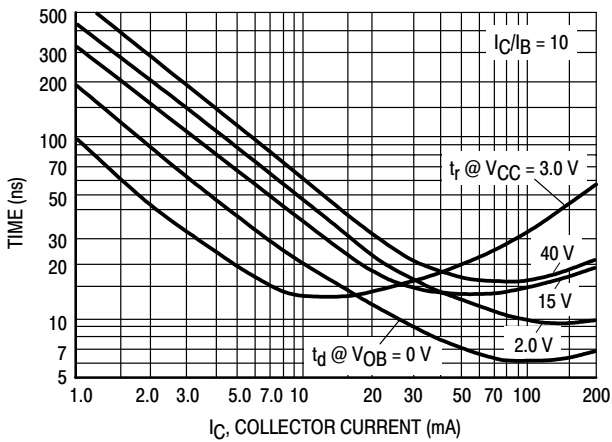


Figure 3. Turn-On Time

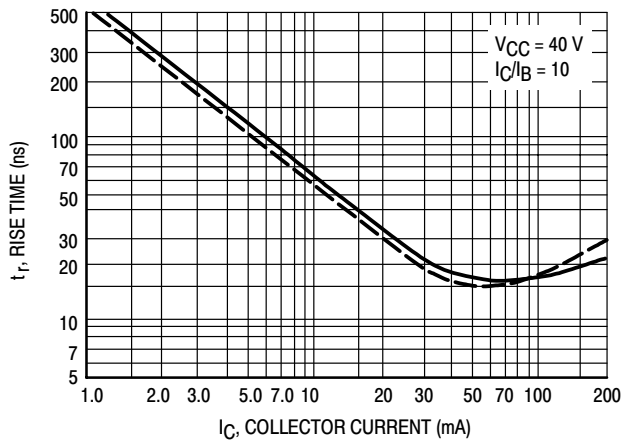


Figure 4. Rise Time

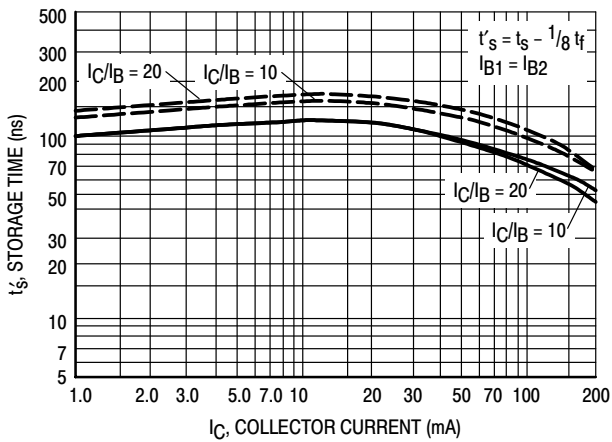


Figure 5. Storage Time

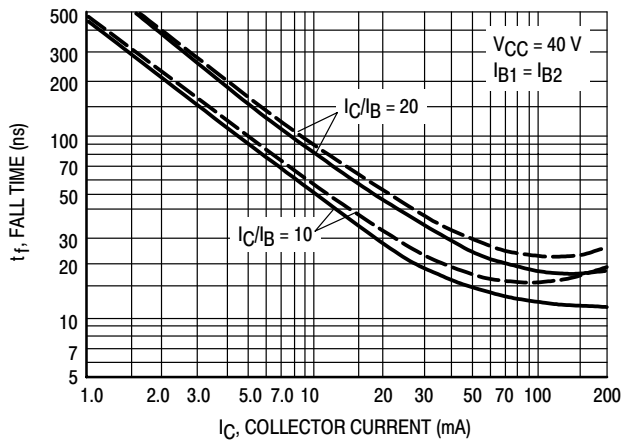


Figure 6. Fall Time

RATING AND CHARACTERISTIC CURVES (MMDT3904DW)

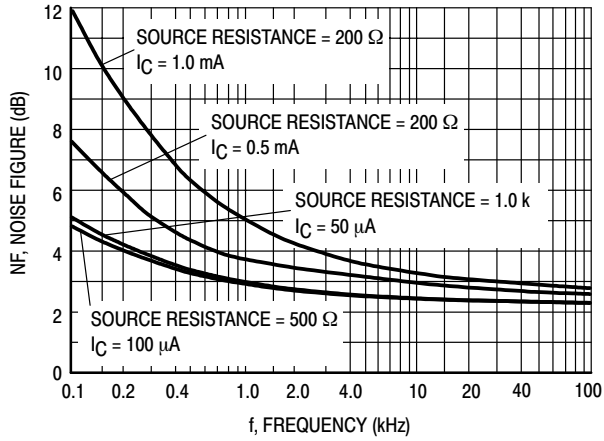


Figure 7. Noise Figure

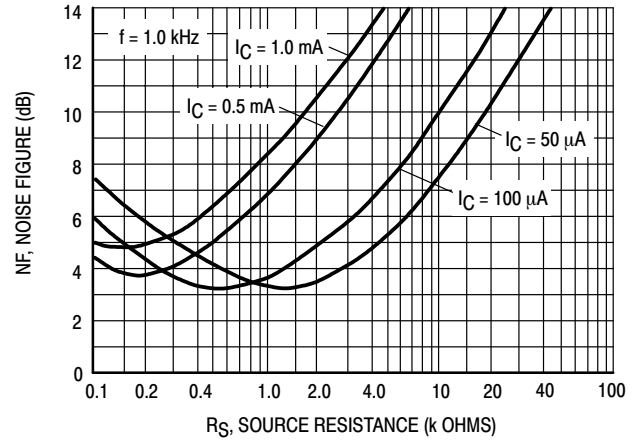


Figure 8. Noise Figure

h PARAMETERS

($V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$, $T_A = 25^\circ\text{C}$)

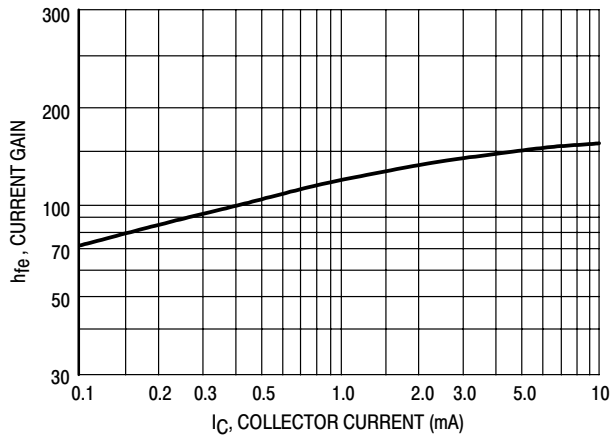


Figure 9. Current Gain

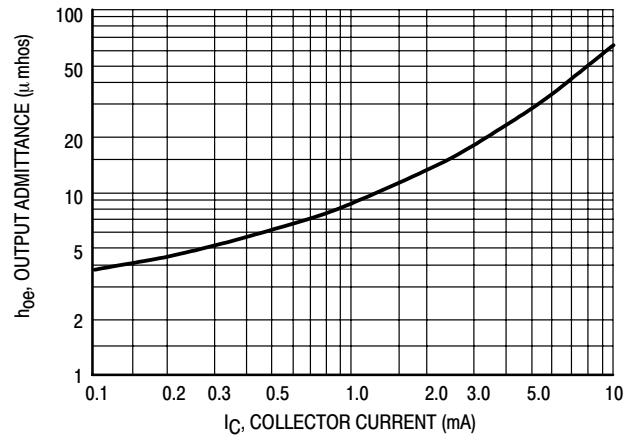


Figure 10. Output Admittance

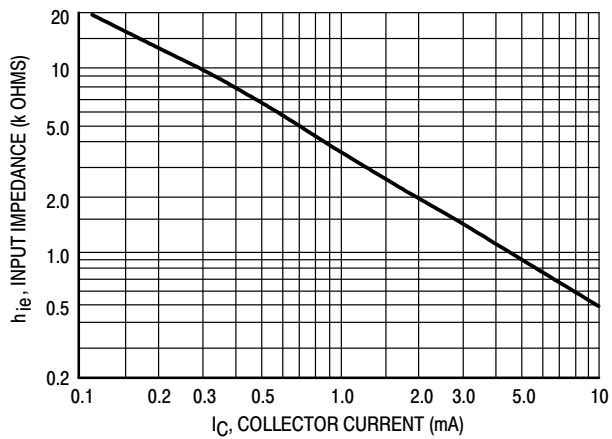


Figure 11. Input Impedance

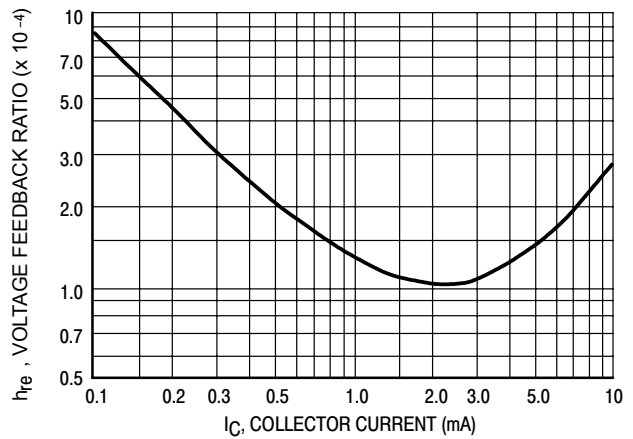


Figure 12. Voltage Feedback Ratio

RATING AND CHARACTERISTIC CURVES (MMDT3904DW)

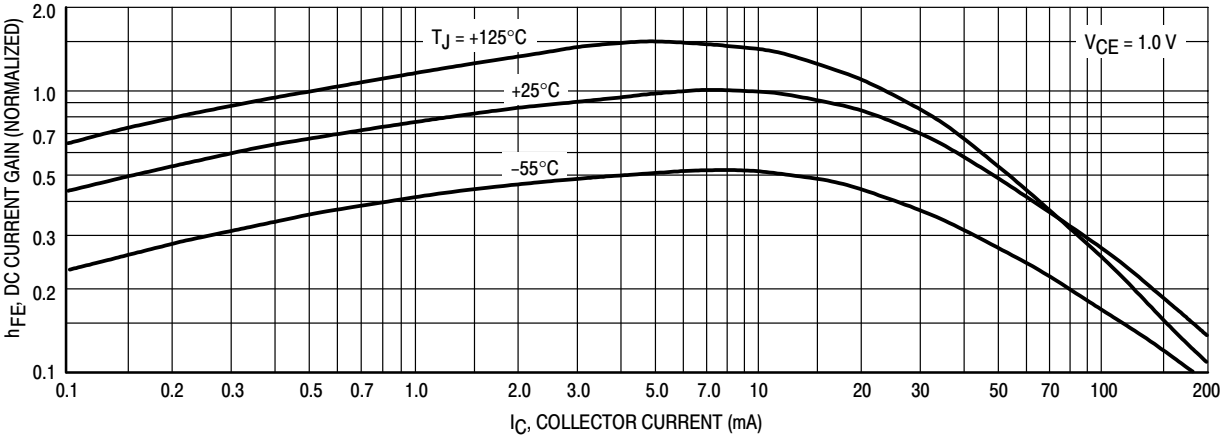


Figure 13. DC Current Gain

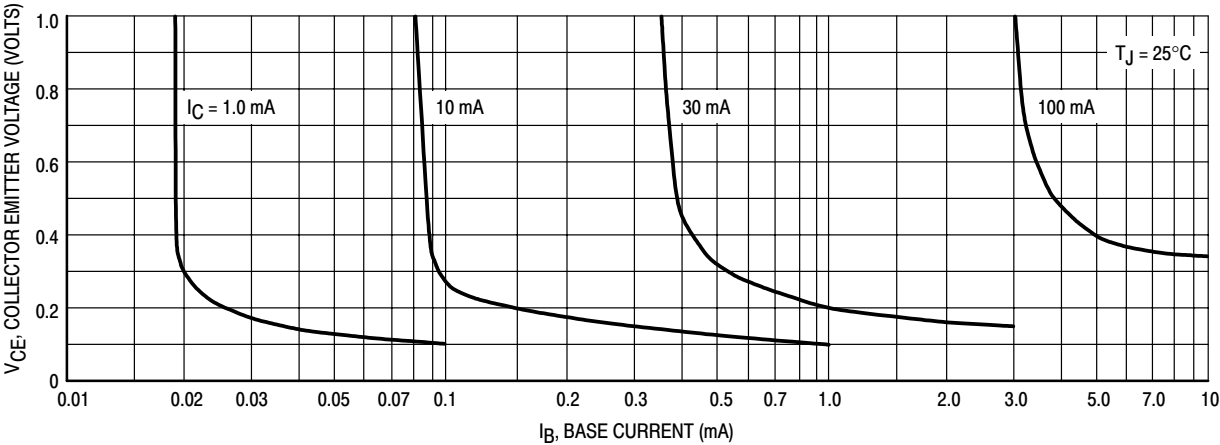


Figure 14. Collector Saturation Region

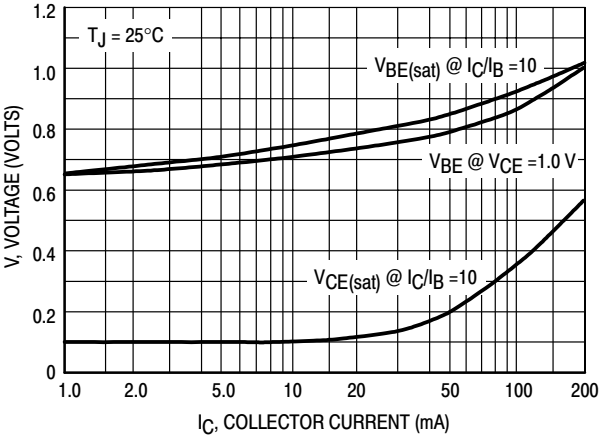


Figure 15. "ON" Voltages

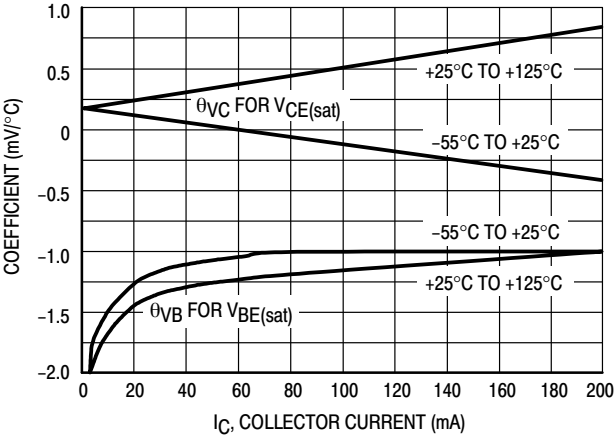


Figure 16. Temperature Coefficients