TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC383TM, 2SC388ATM

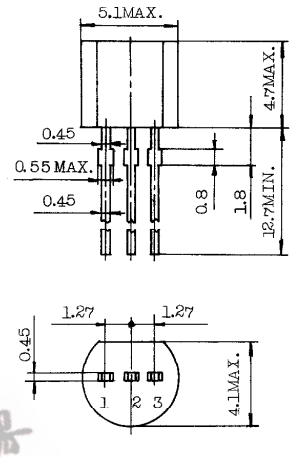
TV FINAL PICTURE IF AMPLIFIER APPLICATIONS.

- High Gain : G_{pe} = 33dB (Typ.) (f = 45MHz)
- Good Linearity of h_{FE}.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector Base Voltage	2SC383TM	V_{CBO}	50	V
	2SC388ATM		30	
Collector Emitter Voltage	2SC383TM	V_{CEO}	45	V
	2SC388ATM		25	
Emitter-Base Voltage		V_{EBO}	4	V
Collector Current		I_C	50	mA
Emitter Current		I_E	−50	mA
Collector Power Dissipation		P_C	300	mW
Junction Temperature		T_j	125	°C
Storage Temperature Range		T_{stg}	−55~125	°C

Unit in mm



1. EMITTER
2. COLLECTOR
3. BASE

JEDEC	TO-92
EIAJ	SC-43
TOSHIBA	2-5F1B

Weight : 0.21g

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	2SC383TM	I_{CBO}	V_{CB} = 50V, I_E = 0	—	—	0.1	μA
	2SC388ATM		V_{CB} = 30V, I_E = 0				
Emitter Cut-off Current		I_{EBO}	V_{EB} = 3V, I_C = 0	—	—	0.1	
Collector-Emitter Breakdown Voltage	2SC383TM	$V_{(BR)CEO}$	I_C = 1mA, I_B = 0	45	—	—	V
	2SC388ATM			25	—	—	
DC Current Gain	2SC383TM	h_{FE}	V_{CE} = 12.5V, I_C = 12.5mA	20	—	100	—
	2SC388ATM			20	—	200	
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$	I_C = 15mA, I_B = 1.5mA	—	—	0.2	V
	Base-Emitter	$V_{BE(sat)}$		—	—	1.5	
Collector Output Capacitance		C_{ob}	V_{CB} = 10V, I_E = 0, f = MHz	0.8	—	2.0	pF
Collector-Base Time Constant		$C_c.r_{bb'}$	V_{CB} = 10V, I_E = −1mA, f = 30MHz	—	—	25	ps
Transition Frequency		f_T	V_{CE} = 12.5V, I_C = 12.5mA	300	—	—	MHz
Power Gain (Fig.1)	2SC383TM	G_{pe}	V_{CC} = 12.5V, I_E = −12.5mA, f = 45MHz	29	—	36	dB
	2SC388ATM			28	—	36	

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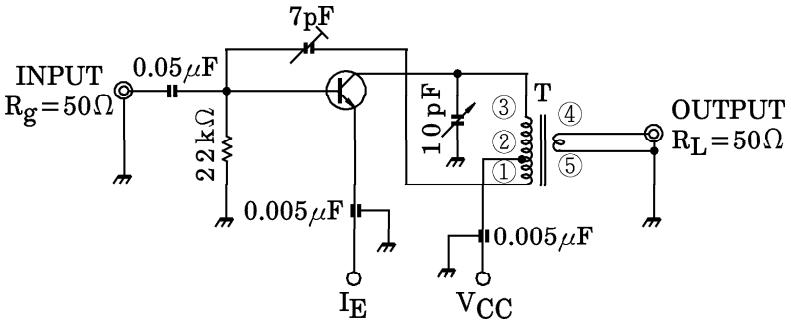
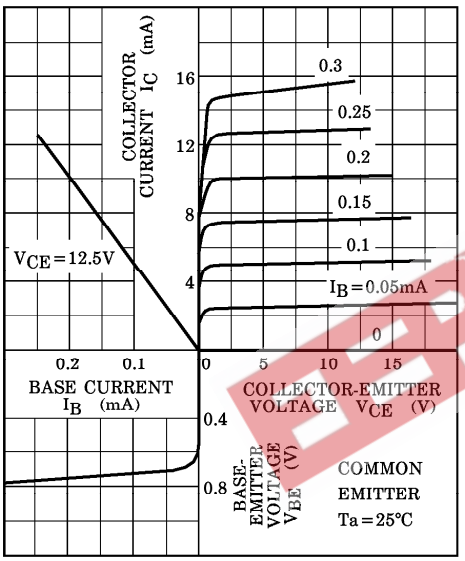


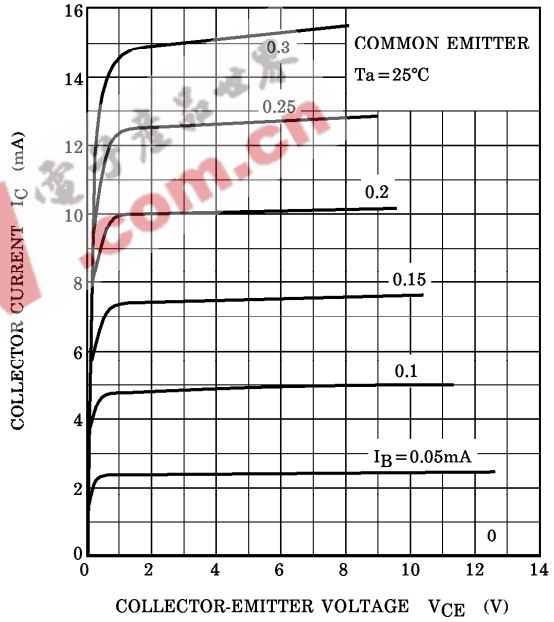
COIL DATA
0.20mmϕ Cu WIRE
L=12μH WITH M-5 CORE
T : ①-② 3.0T
②-③ 8.0T
④-⑤ 1.0T

Fig.1 45MHz G_{pe} TEST CIRCUIT

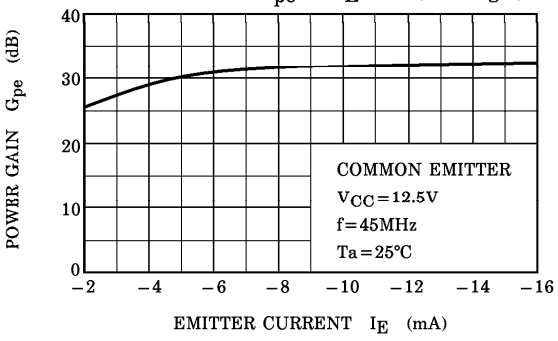
STATIC CHARACTERISTICS



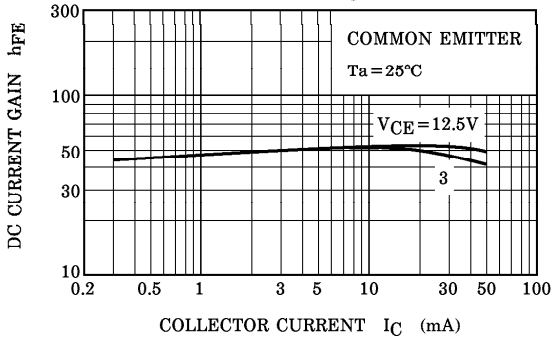
I_C – V_{CE}



G_{pe} – I_E (See Fig.1)



h_{FE} – I_C



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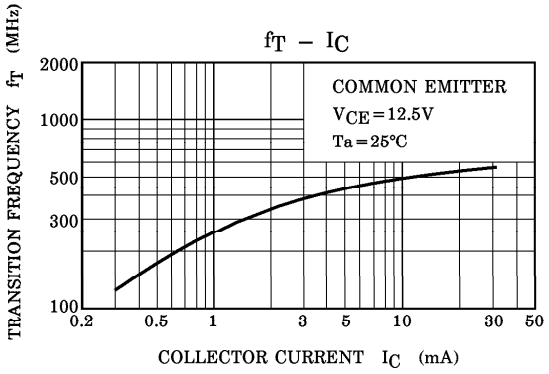
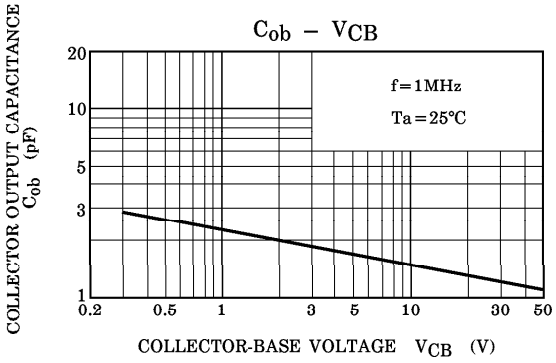
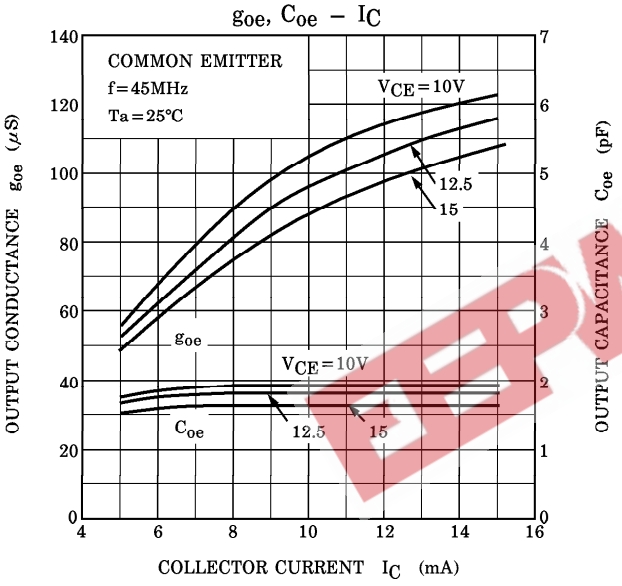
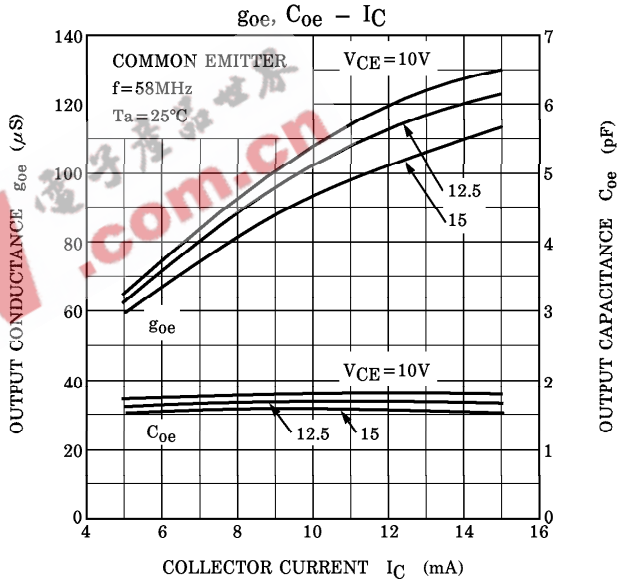
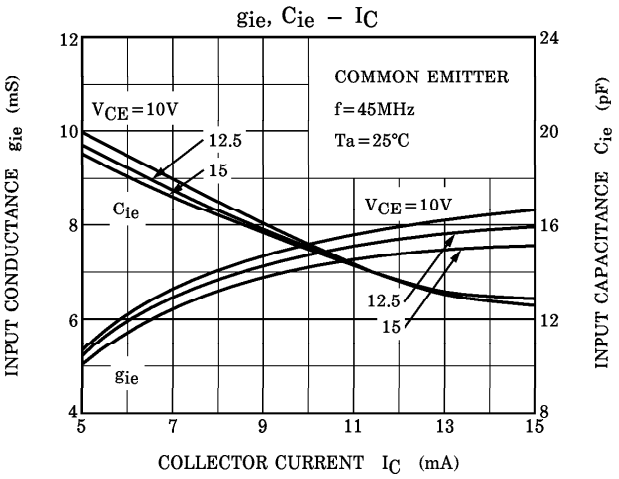
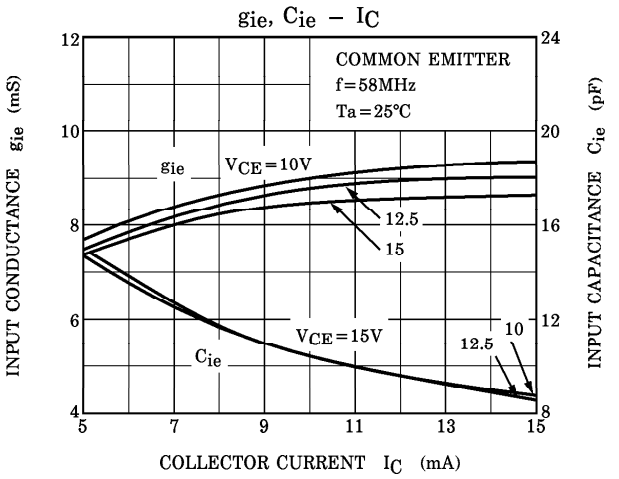

f_T – I_C
COMMON EMITTER
V_{CE} = 12.5V
Ta = 25°C
TRANSITION FREQUENCY f_T (MHz)
COLLECTOR CURRENT I_C (mA)


C_{ob} – V_{CB}
f = 1MHz
Ta = 25°C
COLLECTOR OUTPUT CAPACITANCE C_{ob} (pF)
COLLECTOR-BASE VOLTAGE V_{CB} (V)

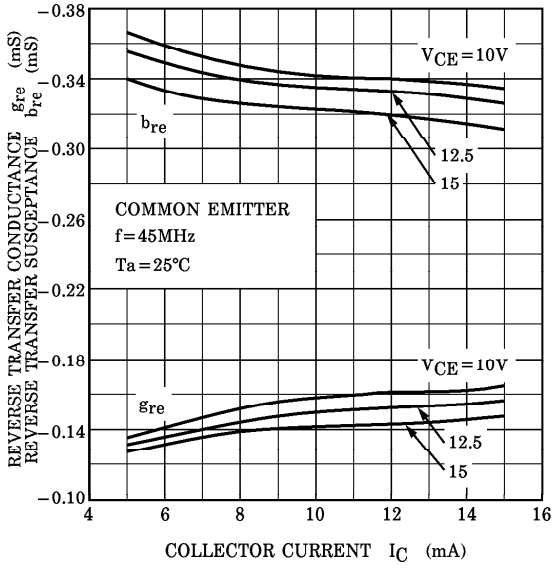

g_{oe}, C_{oe} – I_C
COMMON EMITTER
f = 45MHz
Ta = 25°C
V_{CE} = 10V
12.5
15
g_{oe}
V_{CE} = 10V
C_{oe}
12.5
15
OUTPUT CONDUCTANCE g_{oe} (μS)
OUTPUT CAPACITANCE C_{oe} (pF)
COLLECTOR CURRENT I_C (mA)


g_{oe}, C_{oe} – I_C
COMMON EMITTER
f = 58MHz
Ta = 25°C
V_{CE} = 10V
12.5
15
g_{oe}
V_{CE} = 10V
C_{oe}
12.5
15
OUTPUT CONDUCTANCE g_{oe} (μS)
OUTPUT CAPACITANCE C_{oe} (pF)
COLLECTOR CURRENT I_C (mA)

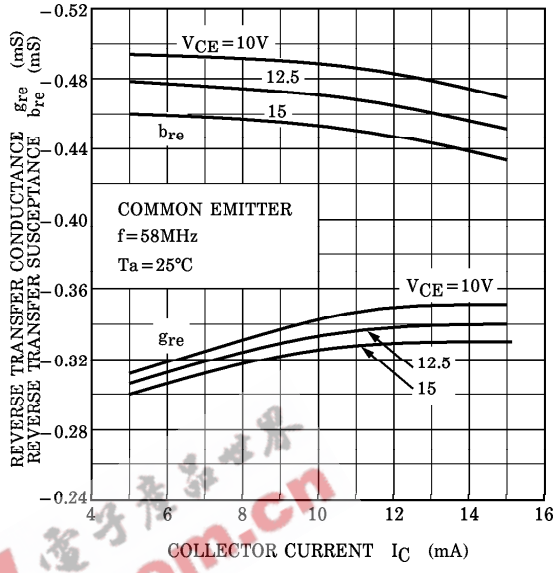

g_{ie}, C_{ie} – I_C
COMMON EMITTER
f = 45MHz
Ta = 25°C
V_{CE} = 10V
12.5
15
C_{ie}
V_{CE} = 10V
12.5
15
g_{ie}
INPUT CONDUCTANCE g_{ie} (mS)
INPUT CAPACITANCE C_{ie} (pF)
COLLECTOR CURRENT I_C (mA)


g_{ie}, C_{ie} – I_C
COMMON EMITTER
f = 58MHz
Ta = 25°C
g_{ie}
V_{CE} = 10V
12.5
15
V_{CE} = 15V
C_{ie}
12.5
10
INPUT CONDUCTANCE g_{ie} (mS)
INPUT CAPACITANCE C_{ie} (pF)
COLLECTOR CURRENT I_C (mA)

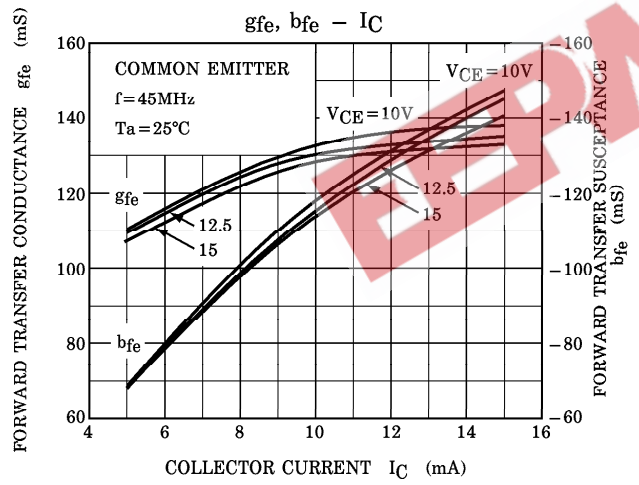
g_{re}, b_{re} – I_C



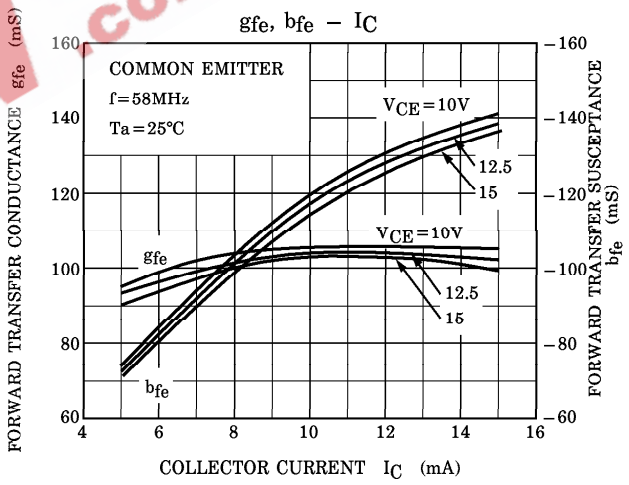
g_{re}, b_{re} – I_C



g_{fe}, b_{fe} – I_C



g_{fe}, b_{fe} – I_C



P_C – Ta