

SILICON NPN EPITAXIAL PLANAR TYPE

2SC2178

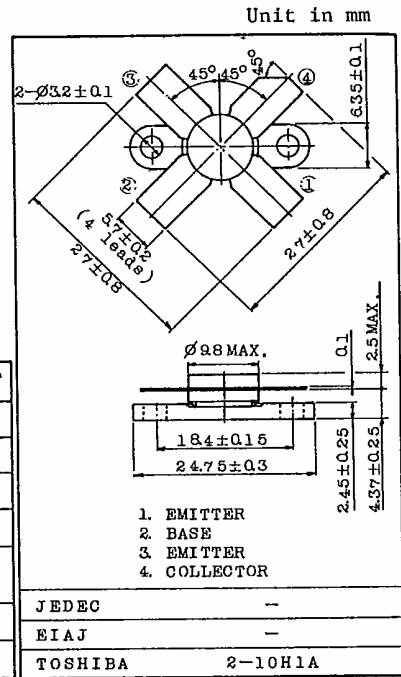
VHF BAND POWER AMPLIFIER APPLICATIONS.

FEATURES :

- . Output Power : $P_o=15W$ (Min.)
($f=175MHz$, $V_{CC}=12.5V$, $P_i=1.3W$)
- . 100% Tested for Load Mismatch Stress at All Phase Angles with 30:1 VSWR @ $V_{CC}=15V$, $P_i=1.3W$, $f=175MHz$

MAXIMUM RATINGS ($T_a=25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	35	V
Collector-Emitter Voltage	V_{CEO}	18	V
Emitter-Base Voltage	V_{EBO}	3.5	V
Collector Current	I_C	3.5	A
Collector Power Dissipation ($T_c=25^\circ C$)	P_C	35	W
Junction Temperature	T_j	175	$^\circ C$
Storage Temperature Range	T_{stg}	-65 ~ 175	$^\circ C$



Weight : 4.0g

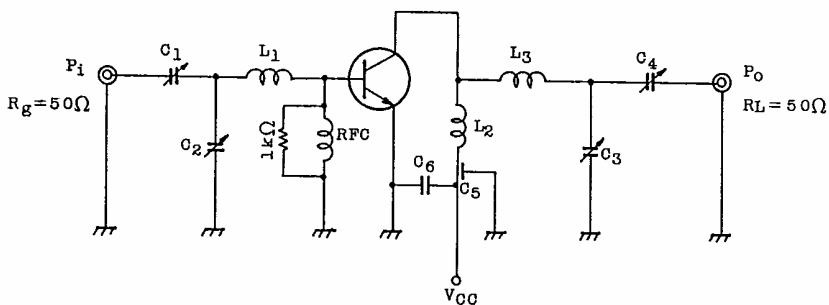
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ C$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB}=15V$, $I_E=0$	-	-	1.0	mA
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10mA$, $I_E=0$	35	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=25mA$, $I_B=0$	18	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA$, $I_C=0$	3.5	-	-	V
DC Current Gain	h_{FE}	$V_{CE}=5V$, $I_C=1A$	10	-	-	
Collector Output Capacitance	C_{ob}	$V_{CB}=10V$, $I_E=0$, $f=1MHz$	-	-	80	pF
Output Power	P_o	(Fig.)	15	18	-	W
Power Gain	G_{pe}	$V_{CC}=12.5V$, $f=175MHz$,	10.6	11.4	-	dB
Collector Efficiency	η_c	$P_i=1.3W$	60	72	-	%
Series Equivalent Input Impedance	Z_{in}	$V_{CC}=12.5V$, $f=175MHz$,	-	1.25 +j0.6	-	Ω
Series Equivalent Output Impedance	Z_{OUT}	$P_o=15W$	-	4.9 -j3.0	-	Ω

TOHIBA CORPORATION

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Fig. P_o TEST CIRCUIT



- C₁ : ~20pF
- C₂, C₃, C₄ : ~30pF
- C₅ : 1000pF FEED THROUGH
- C₆ : 0.01μF CERAMIC CONDENSER
- L₁, L₃ : φ1 SILVER PLATED COPPER WIRE, 6ID, 1T
- L₂ : φ1 SILVER PLATED COPPER WIRE, 6ID, 2T
- RFC : φ1 ENAMEL COATED COPPER WIRE, 6ID, 3T

