

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

S8834

FEATURES:

- MEDIUM POWER
 $P_{1dB} = 21 \text{ dBm}$ at $f = 8 \text{ GHz}$
- HIGH GAIN
 $G_{1dB} = 9 \text{ dB}$ at $f = 8 \text{ GHz}$
- SUITABLE FOR C-BAND AMPLIFIER
- ION IMPLANTATION

RF PERFORMANCE SPECIFICATIONS ($T_a = 25^\circ \text{C}$)

TYPE NUMBER (PACKAGE CODE)				S8834 (2-3H1B)		
CHARACTERISTIC	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P_{1dB}	$V_{DS} = 10V$ $f = 8\text{GHz}$	dBm	20.0	21.0	-
Power Gain at 1dB Compression Point	G_{1dB}		dB	8.0	9.0	-
Drain Current	I_{DS}		A	-	0.04	0.07
Power Added Efficiency	η_{add}		%	-	27	-

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

TYPE NUMBER (PACKAGE CODE)				S8834 (2-3H1B)		
CHARACTERISTIC	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Trans-conductance	g_m	$V_{DS} = 3V$ $I_{DS} = 45\text{mA}$	mS	-	30	-
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3V$ $I_{DS} = 1.5\text{mA}$	V	-2	-3	-5
Saturated Drain Current	I_{DSS}	$V_{DS} = 3V$ $V_{GS} = 0V$	A	-	0.09	0.125
Gate to Source Breakdown Voltage	V_{GSO}	$I_{GS} = -1.5\mu A$	V	-5	-	-
Thermal Resistance	$R_{th(c-c)}$	Channel to case	$^\circ\text{C/W}$	-	50	100

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TOSHIBA CORPORATION

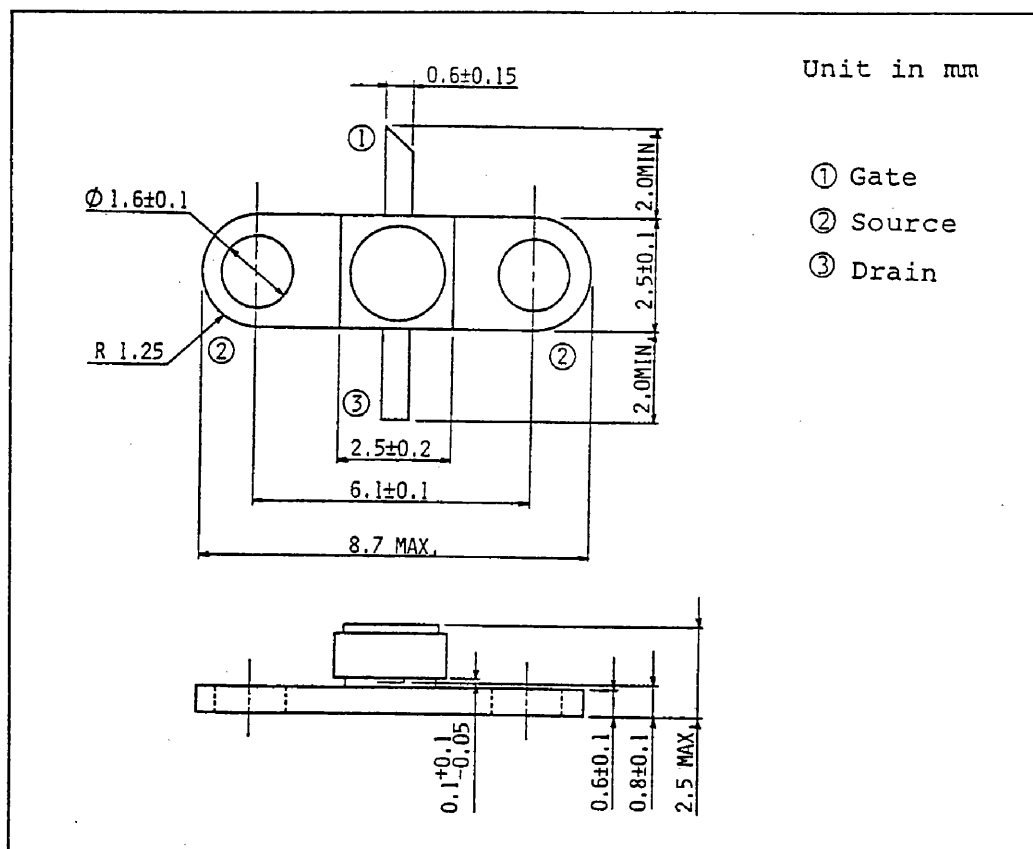
Revised May 1989

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ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

TYPE NUMBER (PACKAGE CODE)			S8834 (2-3H1B)
CHARACTERISTIC	SYMBOL	UNIT	RATING
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I_D	A	0.125
Total Power Dissipation ($T_c=25^{\circ}\text{C}$)	P_T	W	1.5
Channel Temperature	T_{ch}	$^{\circ}\text{C}$	175
Storage Temperature	T_{stg}	$^{\circ}\text{C}$	-65~175

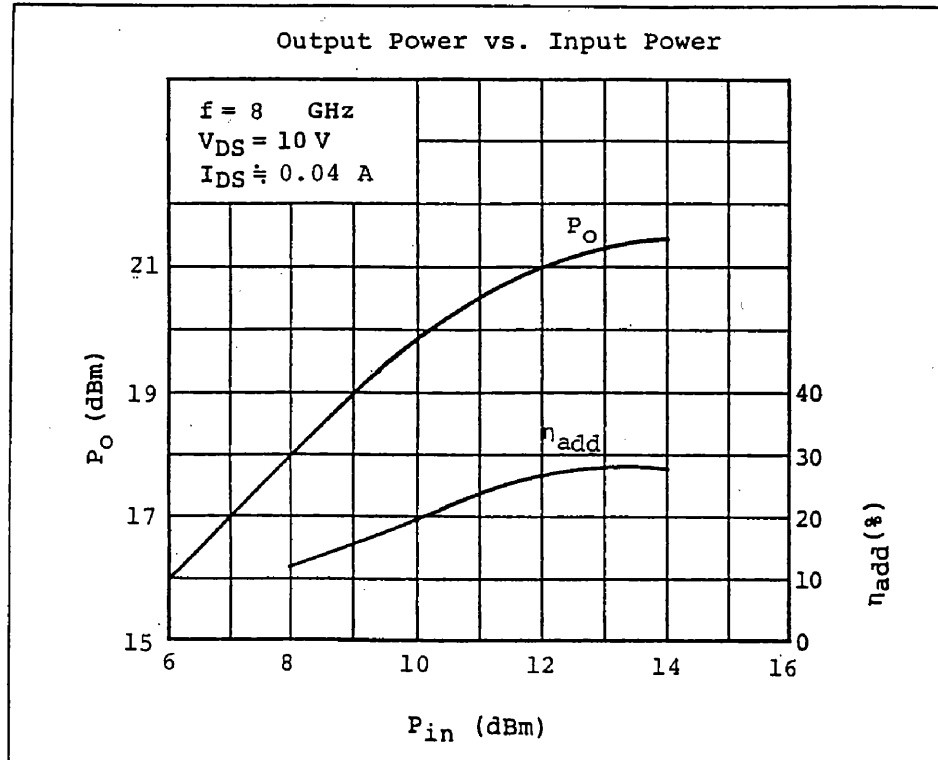
PACKAGE OUTLINE (2-3H1B)



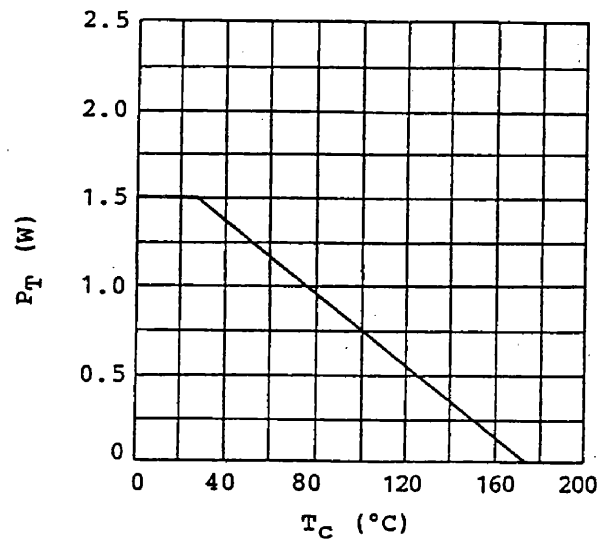
HANDLING PRECAUTIONS FOR PACKAGED TYPE

Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

OUTPUT POWER CHARACTERISTIC



POWER DISSIPATION VS. CASE TEMPERATURE



S8834

S8834 S-PARAMETERS (MAGN. and ANGLES)

$V_{DS} = 10 \text{ V}$, $I_{DS} = 40 \text{ mA}$

