

TOSHIBA

MICROWAVE SEMICONDUCTOR TECHNICAL DATA

MICROWAVE POWER GaAs FET

S8834

FEATURES:

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

RF PERFORMANCE SPECIFICATIONS (Ta = 25° 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 = 8GHz	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 (Ta = 25° C)

TYPE NUMBER (PACKAGE CODE)				S8834 (2-3H1B)		
CHARACTERISTIC	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Trans-conductance	g _m	V _{DS} = 3V I _{DS} = 45mA	mS	-	30	-
Pinch-off Voltage	V _{GSo} off	V _{DS} = 3V I _{DS} = 1.5mA	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} = -1.5μA	V	-5	-	-
Thermal Resistance	R _{th(c-c)}	Channel to case	°C/W	-	50	100

* The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of TOSHIBA or others.

* The information contained herein may be changed without prior notice. It is therefore advisable to contact TOSHIBA before proceeding with the design of equipment incorporating this product.

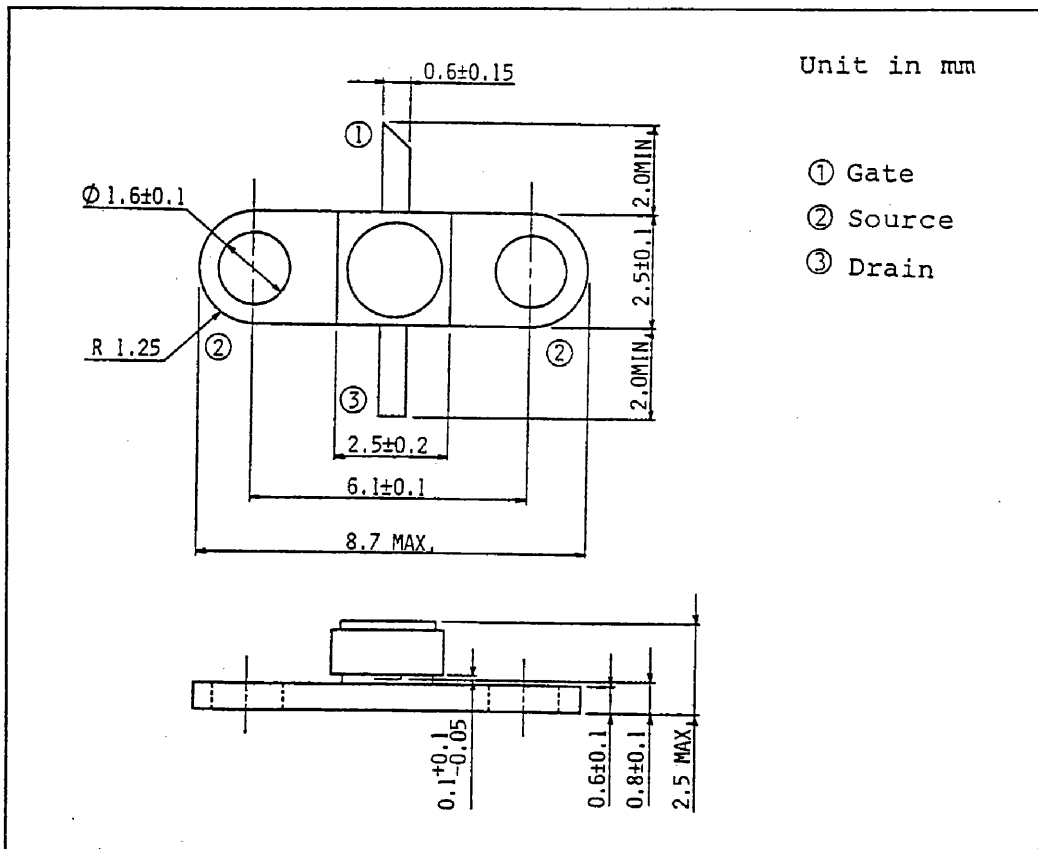


S8834

ABSOLUTE MAXIMUM RATINGS (Ta=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 (Tc=25°C)	P_T	W	1.5
Channel Temperature	T_{ch}	°C	175
Storage Temperature	T_{stg}	°C	-65~175

PACKAGE OUTLINE (2-3H1B)

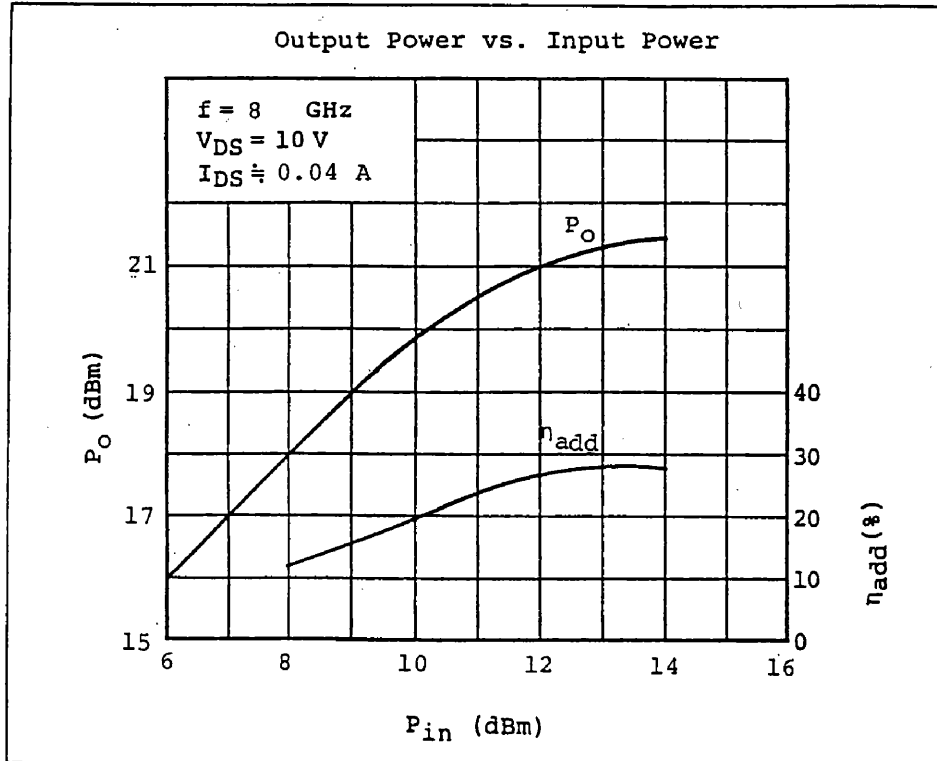


HANDLING PRECAUTIONS FOR PACKAGED TYPE

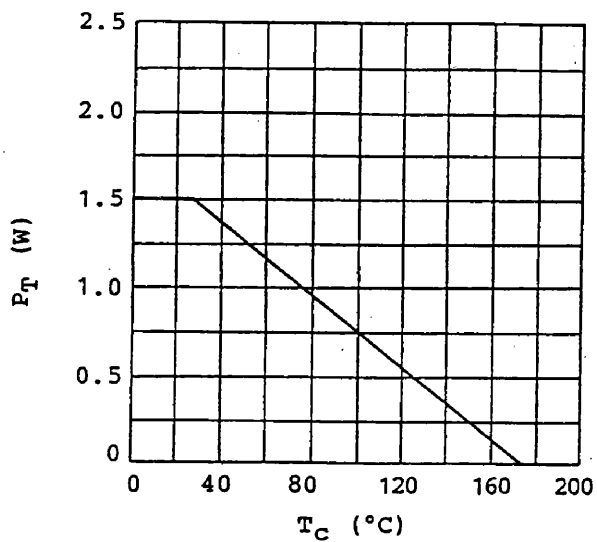
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

S8834

OUTPUT POWER CHARACTERISTIC



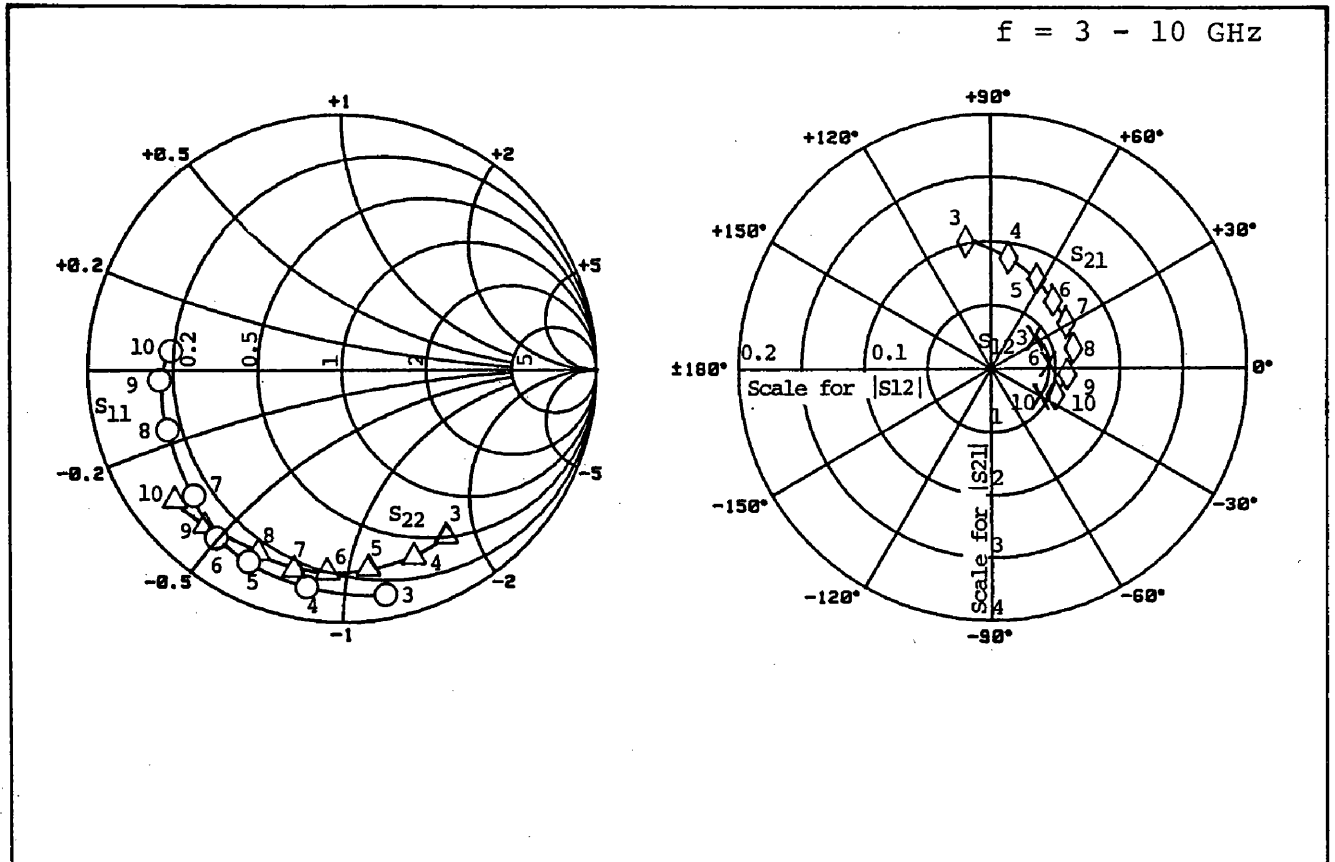
POWER DISSIPATION VS. CASE TEMPERATURE



S8834

S8834 S-PARAMETERS (MAGN. and ANGLES)

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



FREQUENCY (GHz)	S ₁₁		S ₁₂		S ₂₁		S ₂₂	
3	0.91	-79	0.042	32	2.04	101	0.78	-58
4	0.87	-99	0.046	20	1.78	81	0.79	-69
5	0.84	-116	0.048	10	1.58	63	0.79	-82
6	0.83	-127	0.046	2	1.43	47	0.80	-94
7	0.77	-140	0.048	-4	1.35	31	0.81	-103
8	0.73	-161	0.050	-13	1.31	13	0.80	-115
9	0.72	-177	0.049	-24	1.20	-6	0.82	-131
10	0.68	174	0.047	-31	1.07	-22	0.84	-142