

**PRODUCT DEVELOPMENT DATA SHEET**

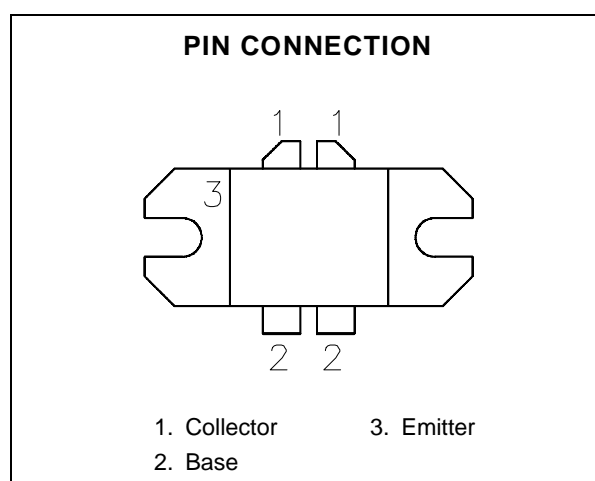
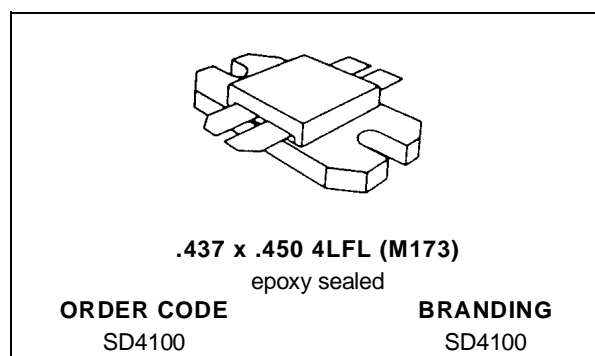
This data sheet contains the design criteria and target specifications for a product which is currently under development by SGS-THOMSON. The design criteria and specifications of this item could change prior to introduction and SGS-THOMSON assumes no liability for use of information contained herein.

## RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

- 470 - 860 MHz
- 28 VOLTS
- CLASS AB PUSH PULL
- DESIGNED FOR HIGH POWER LINEAR OPERATION
- HIGH SATURATED POWER CAPABILITY
- INTERNAL INPUT/OUTPUT MATCHING NETWORKS PROVIDE HIGH BALANCED IMPEDANCES FOR SIMPLIFIED CIRCUIT DESIGN AND WIDE INSTANTANEOUS BANDWIDTH
- GAIN = 8.5 dB MIN.
- $P_{OUT} = 100\text{ W MIN. CW}$
- $P_{OUT} = 125\text{ W PEAK SYNC.}$

**DESCRIPTION**

The SD4100 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class AB operation in UHF and Band IV, V television transmitters and transposers.


**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}\text{C}$ )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	65	V
$V_{CEO}$	Collector-Emitter Voltage	30	V
$V_{EBO}$	Emitter-Base Voltage	3.5	V
$I_C$	Device Current	16	A
$P_{DISS}$	Power Dissipation (+25°C)	220	W
$T_J$	Junction Temperature	+200	°C
$T_{STG}$	Storage Temperature	- 65 to +150	°C

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	0.8	°C/W
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**ELECTRICAL SPECIFICATIONS** ( $T_{\text{case}} = 25^{\circ}\text{C}$ )**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{\text{CBO}}$	$I_{\text{C}} = 40 \text{ mA}$	$I_{\text{E}} = 0 \text{ mA}$	65	—	—	V
$BV_{\text{CEO}}$	$I_{\text{C}} = 80 \text{ mA}$	$I_{\text{B}} = 0 \text{ mA}$	30	—	—	V
$BV_{\text{CER}}$	$I_{\text{C}} = 120 \text{ mA}$	$R_{\text{BE}} = 75 \Omega$	40	—	—	V
$BV_{\text{EBO}}$	$I_{\text{E}} = 20 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	3.5	—	—	V
$I_{\text{CEO}}$	$V_{\text{CE}} = 28 \text{ V}$	$I_{\text{B}} = 0 \text{ mA}$	—	—	10	mA
$h_{\text{FE}}$	$V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C}} = 4 \text{ A}$	25	—	120	—

**DYNAMIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$C_{\text{OB}}$	$f = 1 \text{ MHz}$ $C_{\text{OB}}$ is not measurable due to Internal Output Matching Network	$V_{\text{CB}} = 28 \text{ V}$ (each side)	—	50	—	pF

**DYNAMIC (CW)**

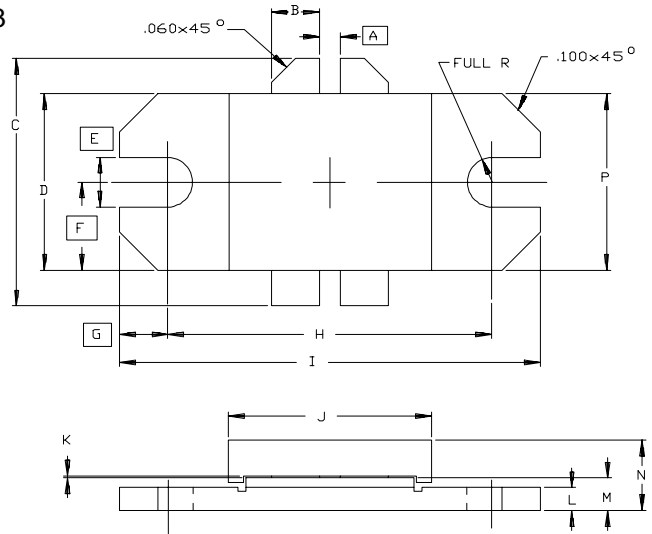
Symbol	Test Conditions				Value			Unit
					Min.	Typ.	Max.	
$P_{1\text{dB}}$	$f = 860 \text{ MHz}$	$P_{\text{REF}} = 25 \text{ W}$	$V_{\text{CC}} = 28 \text{ V}$	$I_{\text{CQ}} = 200 \text{ mA}$	100	—	—	W
$G_{\text{P}}$	$f = 860 \text{ MHz}$	$P_{\text{OUT}} = 100 \text{ W}$	$V_{\text{CC}} = 28 \text{ V}$	$I_{\text{CQ}} = 200 \text{ mA}$	8.5	—	—	dB
$\eta_{\text{C}}$	$f = 860 \text{ MHz}$	$P_{\text{OUT}} = 100 \text{ W}$	$V_{\text{CC}} = 28 \text{ V}$	$I_{\text{CQ}} = 200 \text{ mA}$	55	—	—	%

**DYNAMIC (Video) (Standard Black Level)**

Symbol	Test Conditions				Value			Unit
					Min.	Typ.	Max.	
$G_{\text{P}}$	$f = 860 \text{ MHz}$	$P_{\text{OUT}} = 125 \text{ W}$	$V_{\text{CC}} = 28 \text{ V}$	$I_{\text{CQ}} = 200 \text{ mA}$	8.5	—	—	dB
$P_{1\text{dB}}$	$f = 860 \text{ MHz}$	$P_{\text{REF}} = 25 \text{ W}$	$V_{\text{CC}} = 28 \text{ V}$	$I_{\text{CQ}} = 200 \text{ mA}$	125	—	—	W
$P_{1\text{dB}}$	$f = 860 \text{ MHz}$	$P_{\text{REF}} = 25 \text{ W}$	$V_{\text{CC}} = 32 \text{ V}$	$I_{\text{CQ}} = 100 \text{ mA}$	150	—	—	W

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0173



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.055/1,40		K	.002/0,05	.006/0,15
B	.120/3,05	.130/3,30	L	.055/1,40	.065/1,65
C		.785/19,94	M	.080/2,03	.095/2,41
D	.455/11,56	.465/11,81	N		.195/4,95
E	.130/3,30		P	.455/11,56	.468/11,89
F	.230/5,84				
G	.128/3,25				
H	.838/21,28	.850/21,59			
I	1.095/27,81	1.105/28,07			
J	.525/13,34	.535/13,59			

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