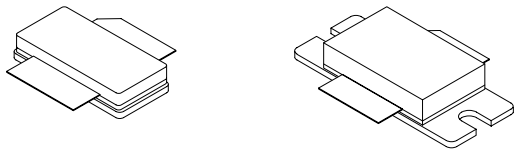
AGR21060E
60 W, 2.110 GHz—2.170 GHz, N-Channel E-Mode, Lateral MOSFET

Introduction

The AGR21060E is a high-voltage, gold-metalized, enhancement mode, laterally diffused metal oxide semiconductor (LDMOS) RF power transistor suitable for wideband code division multiple access (W-CDMA), single and multicarrier class AB wireless base station power amplifier applications.



AGR21060EU (unflanged) **AGR21060EF (flanged)**

Figure 1. Available Packages

Features

- Typical performance for two carrier 3GPP W-CDMA systems. F1 = 2135 MHz and F2 = 2145 MHz with 3.84 MHz channel bandwidth (BW), adjacent channel BW = 3.84 MHz at F1 – 5 MHz and F2 + 5 MHz. Third-order distortion is measured over 3.84 MHz BW at F1 – 10 MHz and F2 + 10 MHz. Typical peak-to-average (P/A) ratio of 8.5 dB at 0.01% (probability) CCDF:
  - — Output power: 13.5 W.
  - — Power gain: 14.5 dB.
  - — Efficiency: 26%.
  - — IM3: –34 dBc.
  - — ACPR: –37 dBc.
  - — Return loss: –12 dB.
- High-reliability gold-metalization process.
- Low hot carrier injection (HCI) induced bias drift over 20 years.
- Internally matched.
- High gain, efficiency, and linearity.
- Integrated ESD protection.
- Device can withstand a 10:1 voltage standing wave ratio (VSWR) at 28 Vdc, 2140 MHz, 60 W continuous wave (CW) output power.
- Large signal impedance parameters available.

Table 1. Thermal Characteristics

Parameter	Sym	Value	Unit
Thermal Resistance, Junction to Case:			
AGR21060EU	$R_{\theta JC}$	1.0	°C/W
AGR21060EF	$R_{\theta JC}$	1.0	°C/W

Table 2. Absolute Maximum Ratings*

Parameter	Sym	Value	Unit
Drain-source Voltage	V_{DSS}	65	Vdc
Gate-source Voltage	V_{GS}	–0.5, 15	Vdc
Total Dissipation at T_C = 25 °C:			
AGR21060EU	P_D	175	W
AGR21060EF	P_D	175	W
Derate Above 25 °C:			
AGR21060EU	—	1.0	W/°C
AGR21060EF	—	1.0	W/°C
Operating Junction Temperature	T_J	200	°C
Storage Temperature Range	T_{STG}	–65, 150	°C

* Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Table 3. ESD Rating*

AGR21060E	Minimum (V)	Class
HBM	500	1B
MM	50	A
CDM	1500	4

* Although electrostatic discharge (ESD) protection circuitry has been designed into this device, proper precautions must be taken to avoid exposure to ESD and electrical overstress (EOS) during all handling, assembly, and test operations. Agere employs a human-body model (HBM), a machine model (MM), and a charged-device model (CDM) qualification requirement in order to determine ESD-susceptibility limits and protection design evaluation. ESD voltage thresholds are dependent on the circuit parameters used in each of the models, as defined by JEDEC's JESD22-A114B (HBM), JESD22-A115A (MM), and JESD22-C101A (CDM) standards.

Caution: MOS devices are susceptible to damage from electrostatic charge. Reasonable precautions in handling and packaging MOS devices should be observed.

RF Power Product Information

For product and application information, please visit our website: **http://www.agere.com/rfpower**.

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