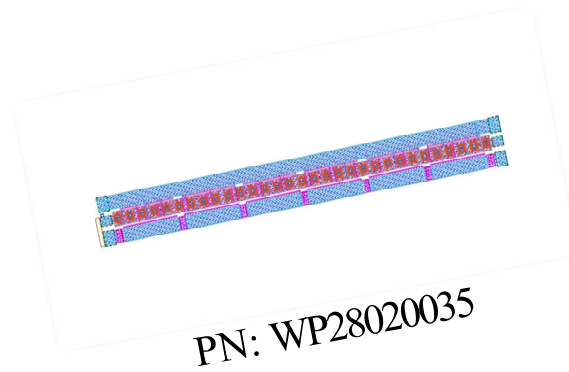




WP28020035

35W, 28V GaN HEMT Die



The WP28020035 is a 35W gallium nitride (GaN) High Electron Mobility Transistor (HEMT). This GaN HEMT is a wideband transistor optimized for 16GHz operation in a user-friendly device for high bandwidth applications. Gallium nitride (GaN) HEMT is a device optimized for ku-band applications. GaN HEMT resistance is only 1/10 that of silicon transistors, making it capable of switching frequencies faster for greater energy efficiency. In addition, we're no EL Issue.

Features

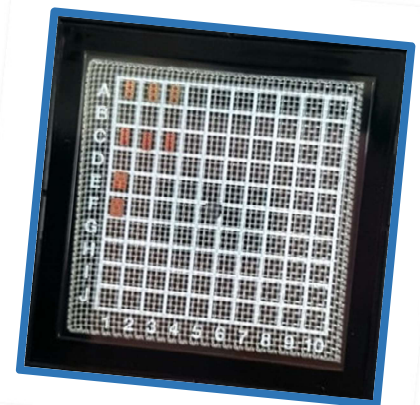
- Up to 15 GHz Operation
- 10.0 dB Typical Small Signal Gain @ 8 GHz
- 35 W Typical Psat @8GHz
- 28V Operation
- High Breakdown Voltage
- High Efficiency
- Reliability Monitoring Supporting

Applications

- ku-band Amplifiers
- Broadband Amplifiers
- Base Station Communications
- Drone, UAV
- Satellite Communications
- Radar application

Packaging Information

- Bare die are shipped in Wafer-level with Expander Ring or Gel-Pak® containers.
- Possible UV Curing for Wafer-level with dicing saw



Absolute Maximum Ratings (not simultaneous) at 25 °C

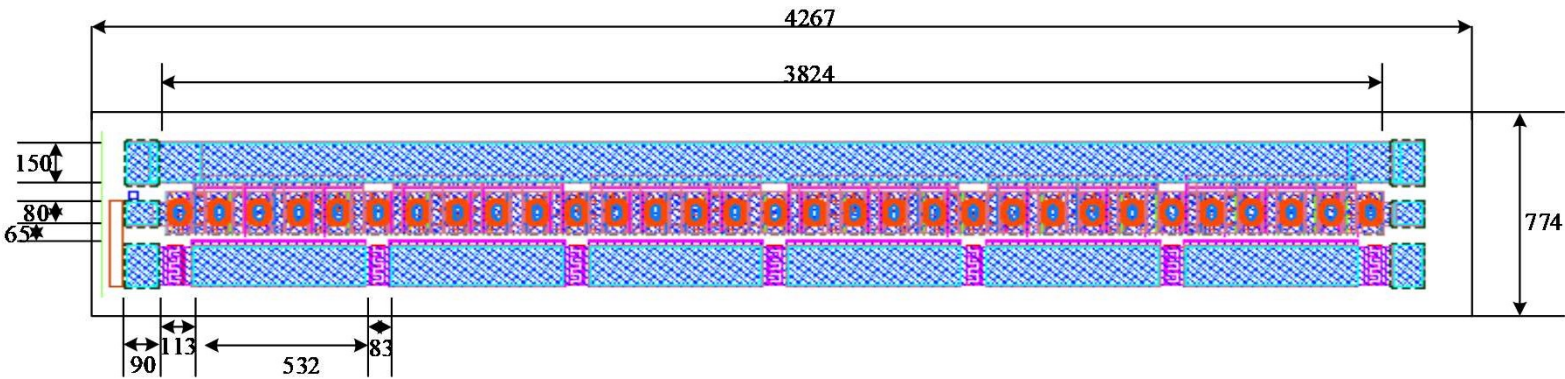
Parameter	Parameter	Typical Value	Units	Conditions
Threshold voltage @ Id=1mA/mm, Vd=10V	V _{to}	-3.4	V	25°C
Breakdown voltage @ Id=1mA/mm	V _{DG}	>100	V	25°C
Drain-source current, Id @ Vd=10V, Vg=0	I _{dss}	880	mA/mm	25°C
Operating Junction Temperature	T _J	225	°C	
Storage Temperature	T _{STG}	-65, +150	°C	
Thermal Resistance, Junction to Case (packaged)	R _{θJC}		°C/W	
Thermal Resistance, Junction to Case (die only)	R _{θJC}		°C/W	
Mounting Temperature (30 seconds)	T _S	320	°C	30 seconds

Electrical Characteristics (Frequency = 3.5 GHz unless otherwise stated; TC = 25 °C)

Parameter	Parameter	Typical Value	Units	Conditions
DC Characteristics				
Ohmic contact resistance	RC	0.4	Ohm-mm	25°C
Maximum Drain-source current, Id @ Vd=10V, Vg=1V (1X125µm device)	I _{dmax}	1050	mA/mm	25°C
Max. trans-conductance, @ Vd=10V, Vg=-4V ~ -1V (1X125µm device)	GM_PEAK	340	mS/mm	25°C
RF Characteristics				
Small Signal Gain	G _{SS}	>10	dB	V _{DD} =28V, I _{DQ} =400mA
Saturated Power Output	P _{SAT}	35	W	V _{DD} =28V, I _{DQ} =400mA
Drain Efficiency	η	>50	%	V _{DD} =28V, I _{DQ} =400mA
Intermodulation Distortion	IM3	<-30	dBc	V _{DD} =28V, I _{DQ} =400mA
Output Mismatch Stress	v _{SWR}	10:1	ψ	



DIE Dimensions (units in microns)



Overall die size 4267 x 774 (+0/-50) microns, die thickness 100 (+/- 10) microns.
All Gate and Drain pads must be wire bonded for electrical connection.

Assembly Notes:

- Recommended solder is AuSn (80/20) solder. Refer to Wavepia's guide for the Eutectic Die Bond Procedure
- Vacuum collet is the preferred method of pick-up.
- The backside of the die is the Source (ground) contact.
- Die back side gold plating is 5 microns thick minimum.
- Thermosonic ball or wedge bonding are the preferred connection methods.
- Gold wire must be used for connections.

Disclaimer

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