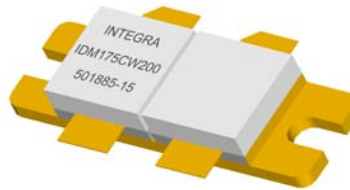


Part Number: IDM175CW200**Integra****TECHNOLOGIES, INC.****VHF-Band RF Power MOSFET**

The high power pulsed transistor part number IDM175CW200 is designed for VHF-Band systems operating at 1-200 MHz. Operating at CW conditions, this dual MOSFET device supplies a minimum of 200 watts of power across the instantaneous operating bandwidth of 1-200 MHz. All devices are 100% screened for large signal RF parameters in the broadband RF test fixture across the entire specified operating bandwidth with no variable or external tuning.

**Silicon MOSFET**

- High Power Gain
- Superior thermal stability

Class B Operation

- Gate biased to $I_{DQ}=0\text{mA}$

Configuration

- Common Source

Gold Metal

- Maximum Reliability

BeO Package

- Unmatched Thermal Reliability

Epoxy Sealed Lid

- Gross Leak Qualified

RF Test Fixture

- Broadband
- Matched to 50 Ω
- Long-term Correlation

Maintained

- 100% Device RF Screening
- No External Tuning Allowed

*TYPICAL DATA**TYPICAL DATA**TYPICAL DATA**TYPICAL DATA*

Part Number: **IDM175CW200****Integra**
TECHNOLOGIES, INC.**MAXIMUM RATINGS**

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
BD	Drain-Source Voltage	V_{DS}	--	80	V	--
BD	Gate-Source Voltage	V_{GS}	--	20	V	--
BD	Storage Temperature Range	T_{STG}	-55	+200	°C	--
BD	Operating Junction Temperature Range	T_J	-55	+200	°C	--
Note	Screen 'BD' = parameter qualified By Design.					

THERMAL CHARACTERISTICS

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
BD	Thermal Resistance	$R_{TH(JC)}$	--	0.4	°C/W	$V_{CC}=28V, I_{DQ}=1A, T_F=25\pm5^\circ C, P_{OUT}=200W$
Note	Screen 'BD' = parameter qualified By Design.					

PROCESSING SPECIFICATIONS

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
100%	DC Wafer Probe	--	--	--	--	Per Integra specification.
Q1	Wafer DC and RF Qualification	--	--	--	--	Per Integra specification.
LM	Wire Bond Strength	--	--	--	--	Line monitor per Integra specification.
100%	Pre-cap visual inspection	--	--	--	--	Per Integra specification
100%	Gross leak test	--	--	--	--	MIL-STD-750D, Method 1071, Test Condition C
Note	Screen 'Q1' = parameter is qualified by assembly and test of 3 pieces minimum per wafer.					
Note	Screen 'LM' = parameter is qualified by assembly line monitor.					

DC ELECTRICAL CHARACTERISTICS

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
100%	Drain-Source Breakdown Voltage	BV_{DSS}	80	--	V	$I_D = 50mA, V_{GS} = 0V, T_F = 25\pm5^\circ C$
100%	Drain Leakage Current (each side)	I_{DSS}	--	5	mA	$V_{DS} = 34V, V_{GS} = 0V, T_F = 25\pm5^\circ C$
100%	Gate Threshold Voltage 1 (each side)	V_{Gsth1}	1.0	--	V	$I_D = 100\mu A, V_{GS} = 10V, T_F = 25\pm5^\circ C$
100%	Gate Threshold Voltage 2 (each side)	V_{Gsth2}	2.0	--	V	$I_D = 50mA, V_{GS} = 10V, T_F = 25\pm5^\circ C$

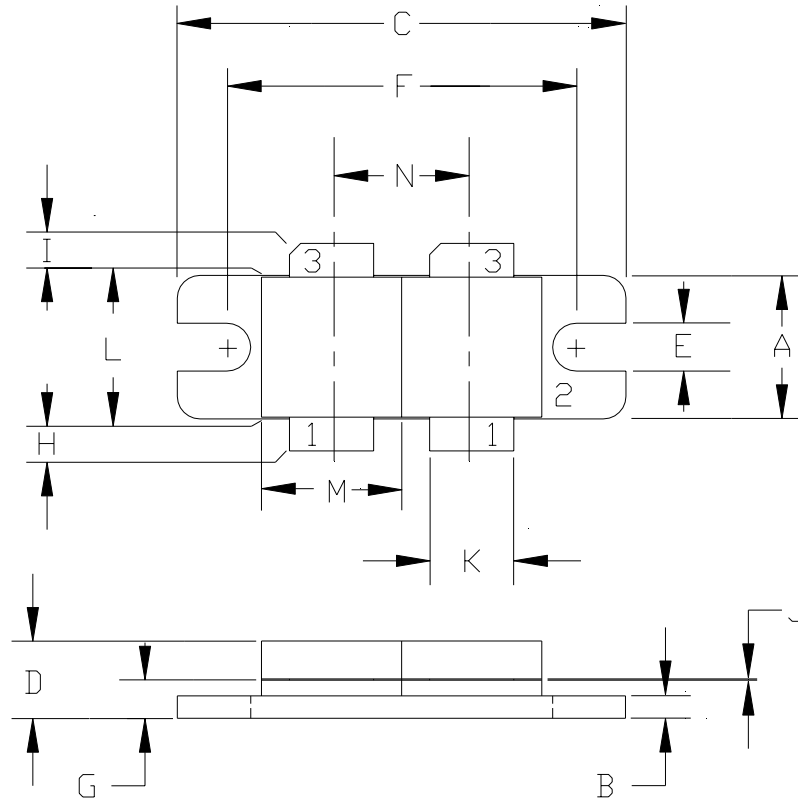
RF ELECTRICAL CHARACTERISTICS

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
100%	Input Return Loss	IRL				$V_{DD}=V1, I_{DQ}=0mA, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=P_{IN1}, F=F1, F2, F3.$
100%	Output Power	P_o				$V_{DD}=V1, I_{DQ}=0mA, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=P_{IN1}, F=F1, F2, F3.$
100%	Drain Efficiency ($P_o/I_D/V_{DD}$)	N_D				$V_{DD}=V1, I_{DQ}=0mA, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=P_{IN1}, F=F1, F2, F3.$
100%	Pulse Amplitude Droop	D				$V_{DD}=V1, I_{DQ}=0mA, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=P_{IN1}, F=F1, F2, F3.$ Measure between 100us and 900us time positions.
100%	Power Gain	G_P				$V_{DD}=V1, I_{DQ}=0mA, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=P_{IN1}, F=F1, F2, F3.$
100%	Gain Flatness versus Frequency	GF				$GF = MAX(G_P) - MIN(G_P).$
100%	Stability into 2:1 VSWR	VSWR-S				$V_{DD}=V1, I_{DQ}=0mA, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=P_{IN1}, F=F1, F2, F3.$ Rotate 2:1 output VSWR through 360° phase. No oscillatory or pulse break-up characteristics allowed on detected output.
100%	3:1 Load Mismatch Tolerance	LMT				$V_{DD}=V1, I_{DQ}=0mA, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=P_{IN1}, F=F1, F2, F3.$ Rotate 3:1 output VSWR through 360° phase. Post test $P_o =$ Pre test $P_o \pm 10W.$
100%	Overdrive Stability	OD-S				$V_{DD}=V1, I_{DQ}=0mA, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=P_{IN2}, F=F1, F2, F3.$ No oscillatory or pulse break-up characteristics allowed on detected output pulse.
Note 1	$V1 = 34V; PW1 = CW, P_{IN1} = 80W; P_{IN2} = 100W, F1 = 125MHz, F2 = 146MHz, F3 = 167MHz.$					
Note 2	$T_F =$ Device flange temperature.					

RF TEST FIXTURE IMPEDANCE CHARACTERISTICS

Frequency (MHz)	$Z_{IF} (\Omega)$	$Z_{OF} (\Omega)$
Impedance Definition		

PACKAGE DIMENSIONAL OUTLINE DRAWING



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.379	0.389	9.63	9.88
B	0.058	0.062	1.47	1.57
C	1.195	1.205	30.35	30.61
D	0.197	0.217	5.00	5.51
E	0.123	0.133	3.12	3.38
F	0.931	0.941	23.65	23.90
G	0.092	0.112	2.34	2.84
H	0.080	0.100	2.03	2.54
I	0.080	0.100	2.03	2.54
J	0.002	0.005	0.05	0.13
K	0.220	0.230	5.59	5.84
L	0.370	0.380	9.40	9.65
M	0.370	0.380	9.40	9.65
N	0.370	0.380	9.40	9.65

PIN SCHEDULE	
1	GATE
2	SOURCE
3	DRAIN

Part Number: **IDM175CW200**

Integra
TECHNOLOGIES, INC.

RF TEST FIXTURE



Part Number: **IDM175CW200****Integra**
TECHNOLOGIES, INC.**DEFINITIONS**

Data Sheet Status	
Proposed Specification	This data sheet contains proposed specifications.
Preliminary Specification	This data sheet contains specifications based on preliminary measurements and data.
Product Specification	This data sheet contains final product specifications.
Maximum Ratings	
Stress above one or more of the maximum ratings may cause permanent damage to the device. These are maximum ratings only and operation of the device at these or at any other conditions above those given in the characteristics sections of the specification is not implied. Exposure to maximum values for extended periods of time may affect device reliability.	

WARNING

Product and environmental safety - toxic materials
This product contains beryllium oxide. The product is entirely safe provided that the BeO base is not damaged. All persons who handle, use or dispose of this product should be aware of its nature and of the necessary safety precautions. After use, dispose of as chemical or special waste according to the regulations applying at the location of the user. It must never be thrown out with general or domestic waste.

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传真：0755-83376182 (0) 13823648918 MSN: SUNS8888@hotmail.com

邮编：518033 E-mail:szss20@163.com QQ: 195847376

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西安劳动南路 88 号电子商城二楼 D23 号

TEL: 029-81022619 13072977981 FAX:029-88789382