Dynamic Characteristics

VRF141G

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
C_{iss}	Input Capacitance	V_{GS} = 0V		400		pF
C_{oss}	Output Capacitance	V_{DS} = 28V		375		
C_{rss}	Reverse Transfer Capacitance	f = 1MHz		50		

Functional Characteristics

Symbol	Parameter	Min	Typ	Max	Unit
G_{PS}	f = 175MHz,- V_{DD} = 28V, I_{DQ} = 500mA, P_{out} = 300W	12	14		dB
η_D	f = 175MHz, V_{DD} = 28V, I_{DQ} = 500mA, P_{out} = 300W	45	55		%
ψ	f = 175MHz, V_{DD} = 28V, I_{DQ} = 500mA, P_{out} = 300W 5:1VSWR - All Phase Angles	No Degradation in Output Power			

1. To MIL-STD-1311 Version A, test method 2204B, Two Tone, Reference Each Tone

Microsemi reserves the right to change, without notice, the specifications and information contained herein.

Typical Performance Curves

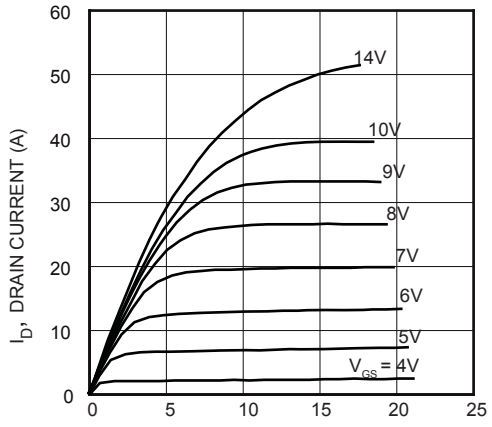


FIGURE 1, Output Characteristics

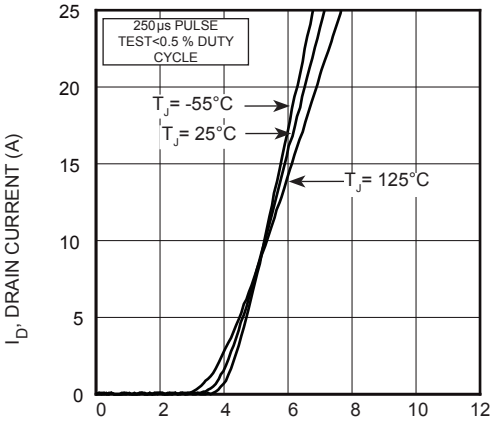


FIGURE 2, Transfer Characteristics

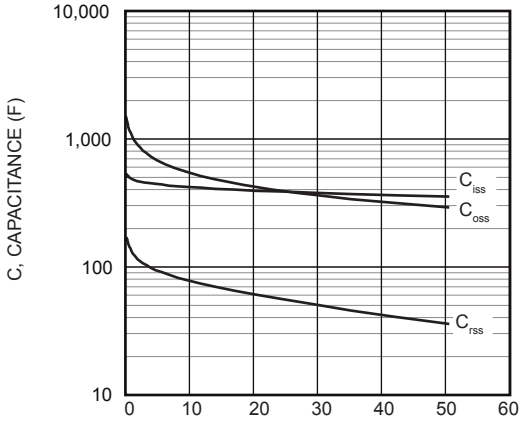


FIGURE 3, Capacitance vs Drain-to-Source Voltage

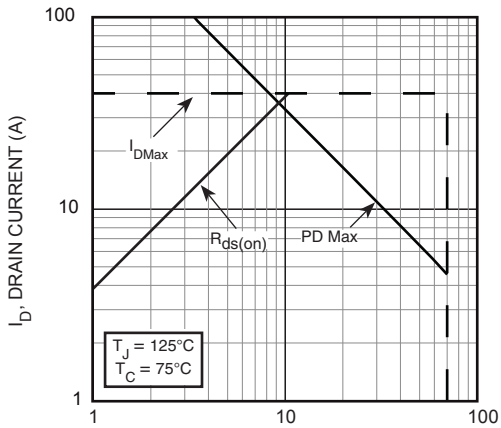


FIGURE 4, Forward Safe Operating Area

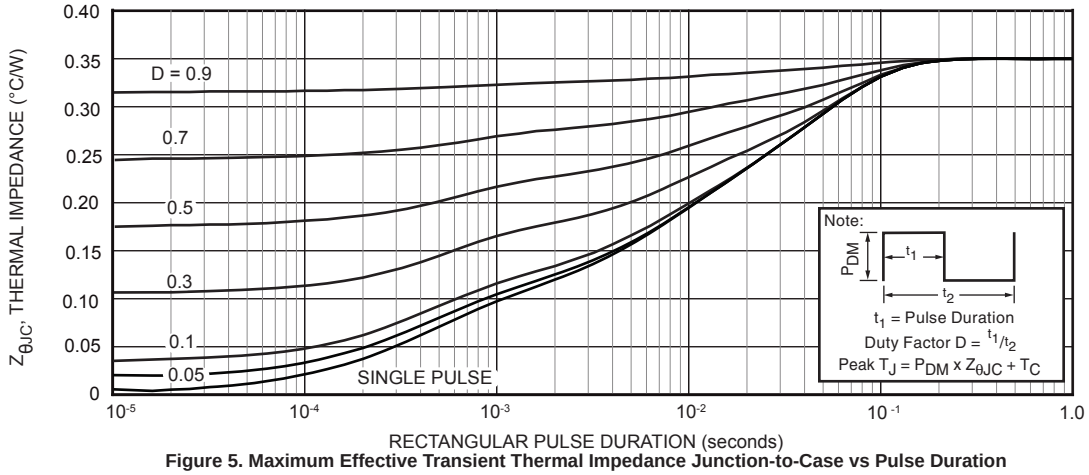
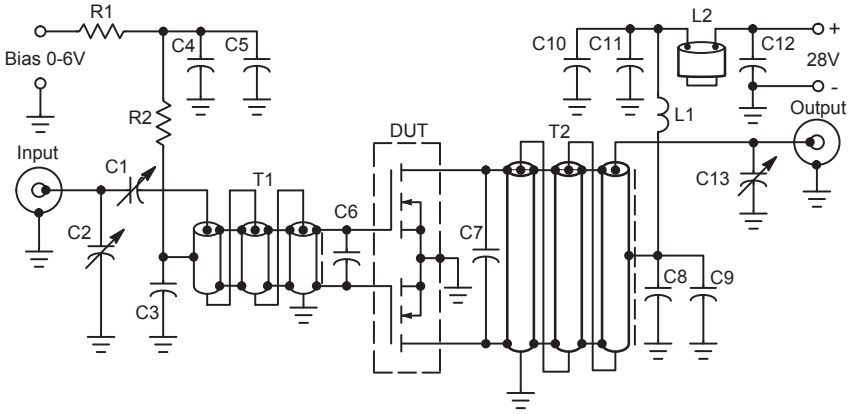
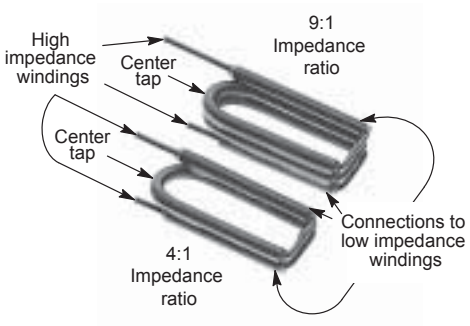


Figure 5. Maximum Effective Transient Thermal Impedance Junction-to-Case vs Pulse Duration





C1 - Arco 402, 1.5 ±20 pF
C2 - Arco 406, 15 ±115 pF
C3, C4, C8, C9, C10 - 1000 pF Chip
C5, C11 - 0.1 mF Chip
C6 - 330 pF Chip
C7 - 200 pF and 180 pF Chips in Parallel
C12 - 0.47 mF Ceramic Chip, Kemet 1215 or Equivalent
C13 - Arco 403, 3.0 ±35 pF
L1 - 10 T urns AWG #16 Enameled Wire, Close Wound, 1/4, I.D.
L2 - Ferrite Beads of Suitable Material for 1.5±2.0 mH Total Inductance
R1 - 100 Ohms, 1/2 W
R2 - 1.0 kOhm, 1/2 W

T1 - 9:1 RF Transformer. Can be made of 15±18 Ohms Semirigid Co-ax, 62 ±90 Mils O.D.
T2 - 1:9 RF Transformer . Can be made of 15±18 Ohms Semirigid Co-ax, 70 ±90 Mils O.D.

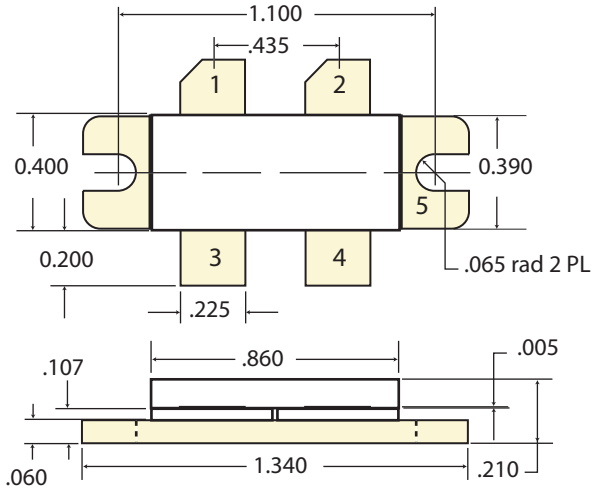
Board Material - 0.062 , Fiberglass (G10), 1 oz. Copper Clad, 2 Sides, e_r = 5

NOTE: For stability, the input transformer T1 must be loaded with ferrite toroids or beads to increase the common mode inductance. For operation below 100 MHz. The same is required for the output transformer. See pictures for construction details.

Unless Otherwise Noted, All Chip Capacitors are ATC Type 100B or Equivalent.

Figure 7. 175 MHz Test Circuit

Pin 1. Drain
2. Drain
3. Gate
4. Gate
5. Source



Package Dimensions (inches)
All Dimensions are ± .005

HAZARDOUS MATERIAL WARNING

The ceramic portion of the device between leads and mounting flange is beryllium oxide. Beryllium oxide dust is highly toxic when inhaled. Care must be taken during handling and mounting to avoid damage to this area. These devices must never be thrown away with general industrial or domestic waste.

050-4953 Rev B 11-2020

Microsemi Headquarters
One Enterprise, Aliso Viejo,
CA 92656 USA
Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996
Email: sales.support@microsemi.com
www.microsemi.com

Microsemi, a wholly owned subsidiary of Microchip Technology Inc. (Nasdaq: MCHP), offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions; security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, California, and has approximately 4,800 employees globally. Learn more at www.microsemi.com.

050-4953 Rev B 11-2020