

PRE-RELEASE PTF 10134*

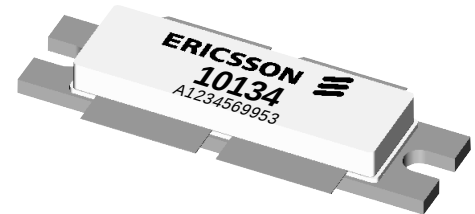
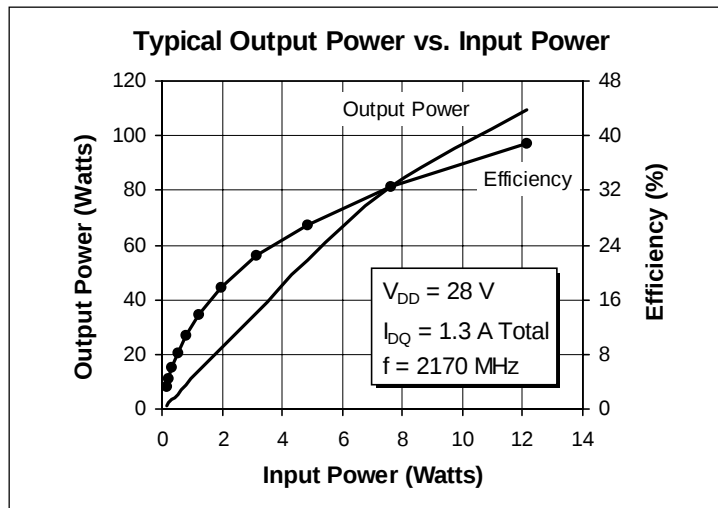
100 Watts, 2.1–2.2 GHz

GOLDMOS™ Field Effect Transistor

Description

The PTF 10134 is an internally matched common source N-channel enhancement-mode lateral MOSFET intended for WCDMA applications from 2.1 to 2.2 GHz. It is rated at 100 watts power output. Nitride surface passivation and gold metallization ensure excellent device lifetime and reliability.

- **INTERNALLY MATCHED**
- **Guaranteed Performance at 2.17 GHz, 28 V**
 - Output Power = 100 Watts Min
 - Power Gain = 10 dB Typ
- **Full Gold Metallization**
- **Silicon Nitride Passivated**
- **Back Side Common Source**
- **Excellent Thermal Stability**
- **100% lot traceability**



Package 20250

Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage ⁽¹⁾	V_{DSS}	65	Vdc
Gate-Source Voltage ⁽¹⁾	V_{GS}	±20	Vdc
Operating Junction Temperature	T_J	200	°C
Total Device Dissipation at $T_{flange} = 25^\circ\text{C}$ Above 25°C derate by	P_D	440 2.51	Watts W/°C
Storage Temperature Range	T_{STG}	-40 to +150	°C
Thermal Resistance ($T_{flange} = 70^\circ\text{C}$)	$R_{\theta JC}$	0.39	°C/W

⁽¹⁾ per side

* Note: Specifications for this product are preliminary and subject to change without notice. Please contact your sales representative for further product information. Complete product information is available on our Website at: www.ericsson.com/rfpower.

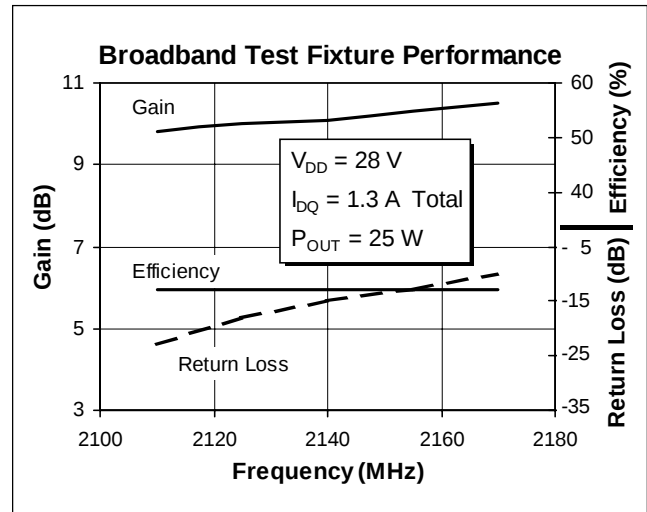
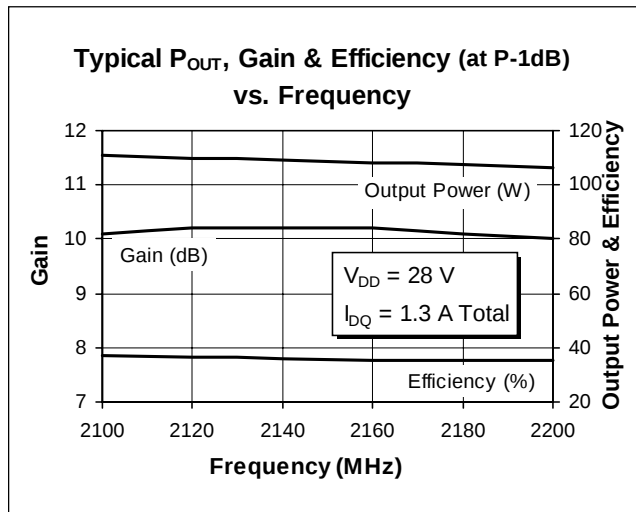
Electrical Characteristics (100% Tested—characteristics, conditions and limits shown per side)

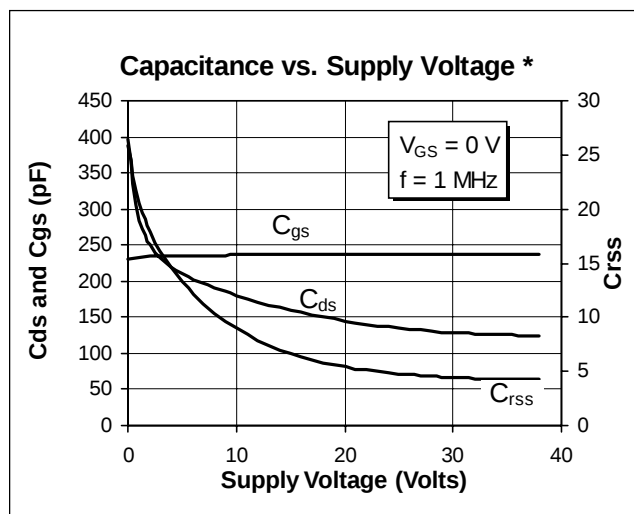
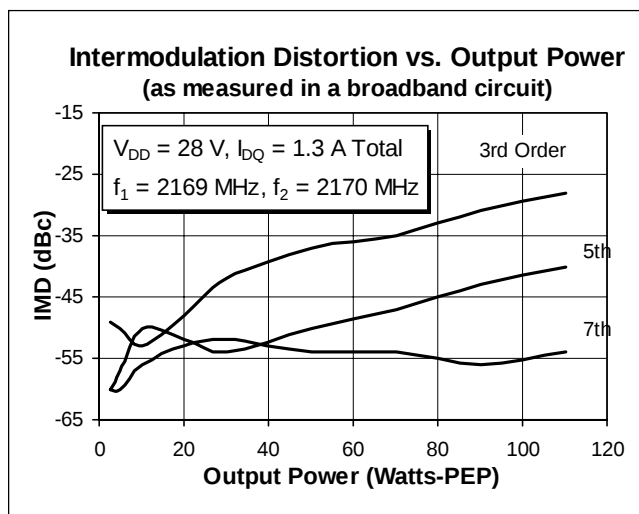
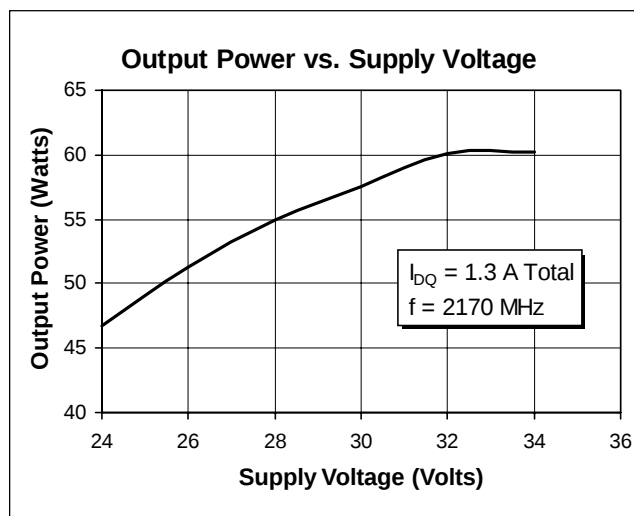
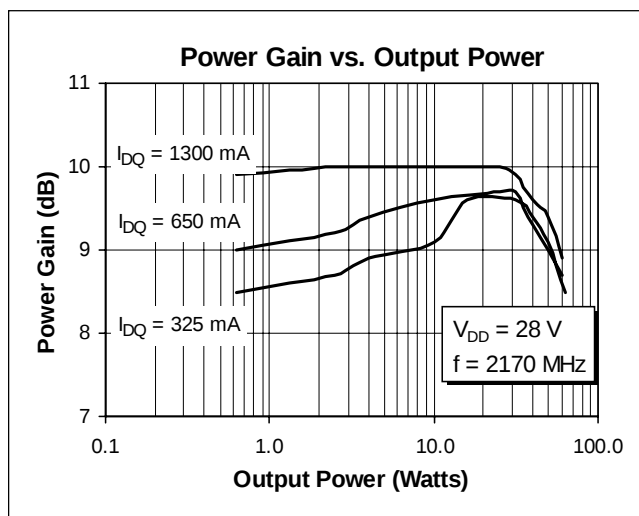
Characteristic (per side)	Conditions	Symbol	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}$, $I_D = 100\text{ mA}$	$V_{(BR)DSS}$	65	—	—	Volts
Zero Gate Voltage Drain Current	$V_{DS} = 28\text{ V}$, $V_{GS} = 0\text{ V}$	I_{DSS}	—	—	5.0	mA
Gate Threshold Voltage	$V_{DS} = 10\text{ V}$, $I_D = 150\text{ mA}$	$V_{GS(th)}$	3.0	—	5.0	Volts
Forward Transconductance	$V_{DS} = 10\text{ V}$, $I_D = 2\text{ A}$	g_{fs}	—	4.0	—	Siemens

RF Specifications (100% Tested)

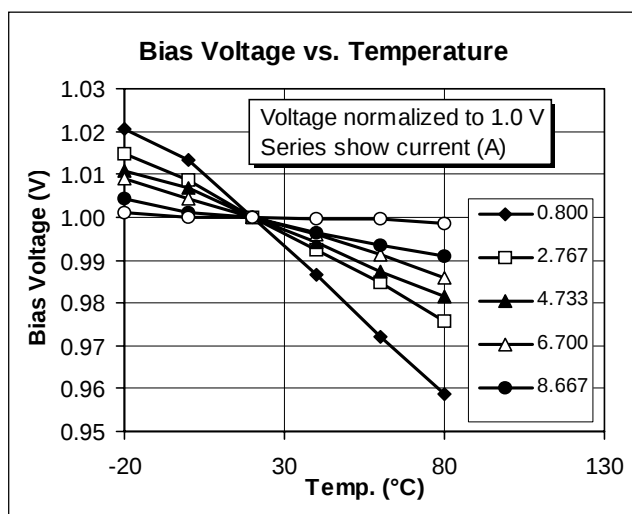
Characteristic	Symbol	Min	Typ	Max	Units
Gain ($V_{DD} = 28\text{ V}$, $P_{OUT} = 30\text{ W}$, $I_{DQ} = 1.3\text{ A Total}$, $f = 2.17\text{ GHz}$)	G_{ps}	9.5	10	—	dB
Power Output at 1 dB Compression ($V_{DD} = 28\text{ V}$, $I_{DQ} = 1.3\text{ A Total}$, $f = 2.17\text{ GHz}$)	P_{1dB}	100	—	—	Watts
Drain Efficiency ($V_{DD} = 28\text{ V}$, $P_{OUT} = 100\text{ W}$, $I_{DQ} = 1.3\text{ A Total}$, $f = 2.17\text{ GHz}$)	η_D	—	37	—	%
Load Mismatch Tolerance ($V_{DD} = 28\text{ V}$, $P_{OUT} = 60\text{ W}$, $I_{DQ} = 1.3\text{ A Total}$, $f = 2.17\text{ GHz}$ —all phase angles at frequency of test)	Ψ	—	—	10:1	—

Typical Performance



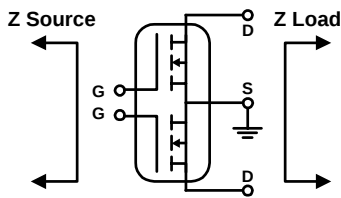


* This part is internally matched. Measurements of the finished product will not yield these results.

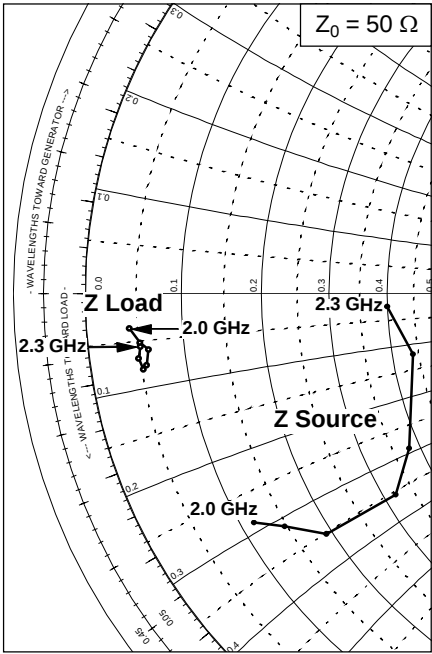


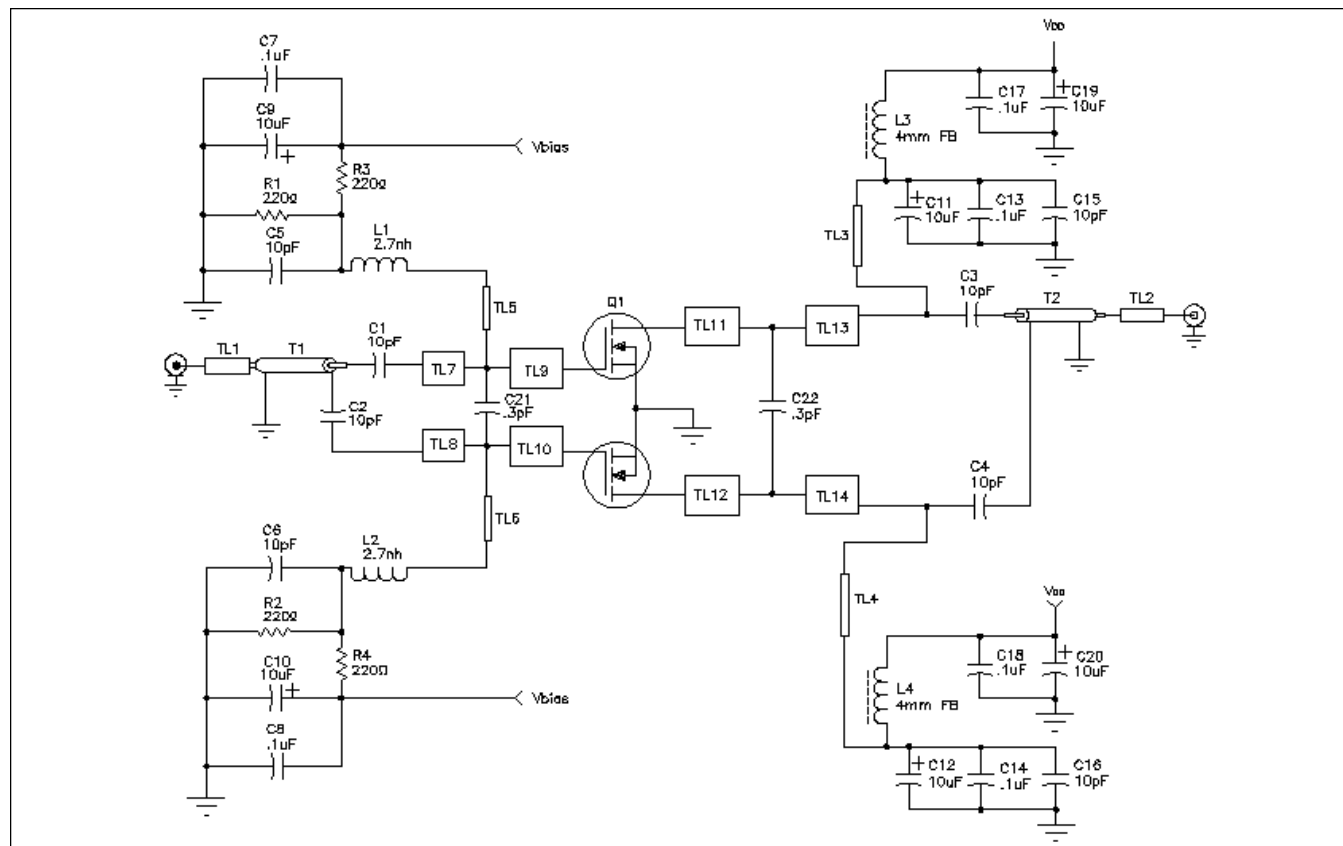
Impedance Data

($V_{DD} = 28\text{ V}$, $P_{OUT} = 100\text{ W}$,
 $I_{DQ} = 1.3\text{ A Total}$)



Frequency	Z Source Ω		Z Load Ω	
GHz	R	jX	R	jX
2.00	5.76	-14.40	2.10	-1.80
2.05	7.40	-15.60	2.60	-2.60
2.10	9.60	-17.60	3.00	-3.00
2.15	16.00	-17.80	2.80	-3.80
2.20	19.00	-14.60	2.60	-4.00
2.25	22.00	-6.00	2.44	-3.40
2.30	20.00	-1.20	2.60	-2.80



Test Circuit


Test Circuit Block Diagram for $f = 2.2 \text{ GHz}$

C1,C2,C3,C4,C5,C6,C15,C16
C7,C8,C13,C14
C9,C10,C11,C12,C19,C20
C17,C18
C21,C22
R1,R2,R3,R4
L1,L2
L3,L4
T1,T2
Circuit Board

ATC 100B
Digi-Key P4525-ND
Digi-Key PC56106-ND
ATC 100B
ATC 100B
Digi-Key P220ECT-ND
TOKO,# LL2012-F2N7S
PHILIPS,#BDS31314-6-452
Roger Microwave

Capacitor,10pF
Capacitor, 0.1 μF
Capacitor,10 μF 35VDC
Capacitor, 0.1 μF
Capacitor, 0.3pF
Resistor, 220 Ω
COIL, 2.7nH,SMT
Ferrite Bead, 4mm
Semi-rigid Coaxial Cable, 50 Ω
PCB,TMM4, Er 6.0, THICKNESS 0.30, 2 OZ COPPER

