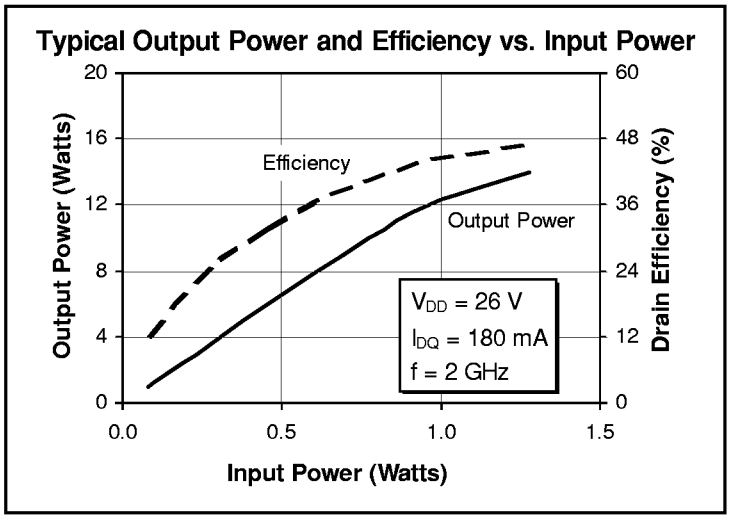
ERICSSON

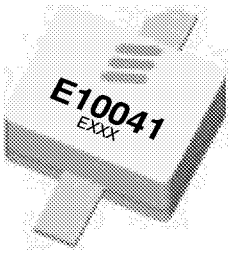
PTE 10041*
12 Watts, 2.0 GHz
LDMOS Field Effect Transistor

Description

The 10041 is a common source n-channel enhancement-mode lateral MOSFET intended for large signal applications from 1.0 to 2.0 GHz. It is rated at 12 watts minimum output power. Ion implantation, nitride surface passivation and gold metallization ensure excellent device lifetime and reliability. 100% lot traceability is standard.

- Guaranteed Performance at 2.0 GHz, 26 V_{DS}
  - Output Power = 12 Watts Min
  - Power Gain = 10 dB Min
  - Efficiency = 45% Typ
- Gold Metallization
- Silicon Nitride Passivated
- Excellent Thermal Stability
- Back Side Common Source





Package 20249

Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	65	Vdc
Gate-Source Voltage	V_{GS}	±20	Vdc
Operating Junction Temperature	T_J	200	°C
Total Device Dissipation at T_{flange} = 25°C Above 25°C derate by	P_D	55 0.33	Watts W/°C
Storage Temperature	T_{STG}	150	°C
Thermal Resistance (T_{flange} = 70°C)	$R_{\theta JC}$	3.0	°C/W

* A "PTE" number indicates that specification is preliminary and subject to change. Order this product or obtain additional information from your Ericsson Sales Representative.

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Electrical Characteristics (100% Tested)

Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = 5 mA	$V_{(BR)DSS}$	65	65	—	Volts
Zero Gate Voltage Drain Current	V_{DS} = 26 V, V_{GS} = 0 V	I_{DSS}	—	—	1.0	mA
Gate Threshold Voltage	V_{DS} = 10 V, I_D = 75 mA	$V_{GS(th)}$	—	3.1	—	Volts
Forward Transconductance	V_{DS} = 10 V, I_D = 2 A	g_{fs}	—	0.8	—	Siemens

Dynamic Characteristics

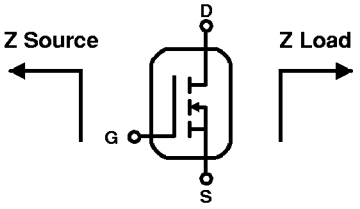
Characteristic	Symbol	Min	Typ	Max	Units
Input Capacitance (V_{DS} = 26 V, V_{GS} = 0 V, f = 1 MHz)	C_{iss}	—	25	—	pF
Output Capacitance (V_{DS} = 26 V, V_{GS} = 0 V, f = 1 MHz)	C_{oss}	—	13	—	pF
Reverse Transfer Capacitance (V_{DS} = 26 V, V_{GS} = 0 V, f = 1 MHz)	C_{rss}	—	0.4	—	pF

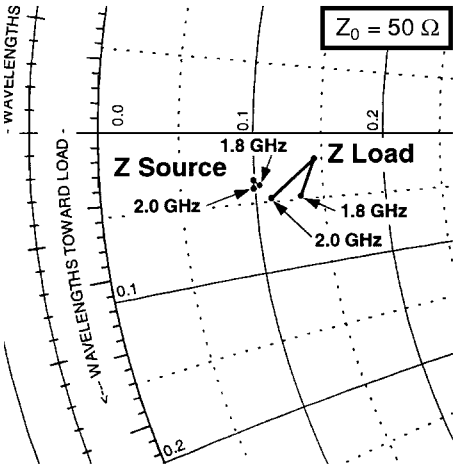
RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain (V_{DD} = 26 V, P_{out} = 10 W, I_{DQ} = 180 mA, f = 1.93, 2.0 GHz)	G_{ps}	10	—	—	dB
Power Output at 1 dB Compression (V_{DD} = 26 V, I_{DQ} = 180 mA, f = 2.0 GHz)	P-1dB	12	—	—	Watts
Drain Efficiency (V_{DD} = 26 V, P_{out} = 12 W, I_{DQ} = 180 mA, f = 2.0 GHz)	η	40	45	—	%
Load Mismatch Tolerance (V_{DD} = 26 V, P_{out} = 12 W, I_{DQ} = 180 mA, f = 2.0 GHz —all phase angles at frequency of test)	Ψ	—	—	10:1	—

Impedance Data (shown for fixed-tuned broadband circuit)

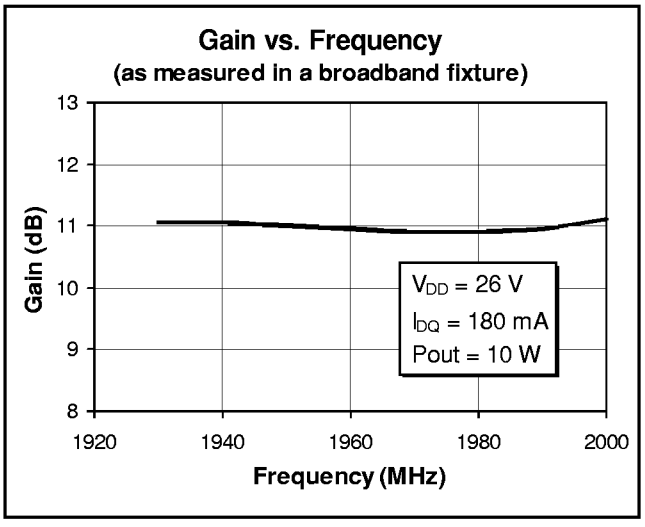
V_{DS} = 26 V, P_{out} = 12 W, I_{DQ} = 180 mA

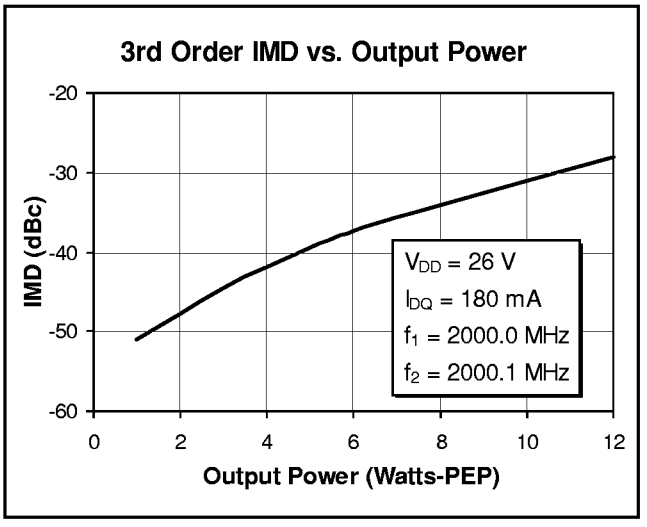




Frequency	Z Source		Z Load	
GHz	R	jX	R	jX
1.8	1.9	-1.9	3.4	-2.4
1.9	1.7	-1.7	4.0	-1.0
2.0	1.7	-2.0	2.3	-2.4

Typical Performance





Typical Scattering Parameters

(V_{DS} = 26 V, I_{DQ} = 500 mA)

f	S11		S21		S12		S22	
(MHz)	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
100	0.898	-99.7	35.3	113	0.012	26.4	0.655	-67.4
150	0.882	-121	26.0	95.5	0.013	10.8	0.641	-83.3
200	0.871	-134	19.6	82.9	0.012	0.433	0.651	-95.7
250	0.878	-142	15.5	73.2	0.013	-10.1	0.688	-105
300	0.881	-148	12.6	64.8	0.011	-14.8	0.717	-113
350	0.888	-153	10.4	57.8	0.011	-20.2	0.747	-119
400	0.896	-157	8.77	52.0	0.010	-23.4	0.786	-125
450	0.902	-160	7.42	46.1	0.009	-23.8	0.799	-130
500	0.903	-164	6.38	41.7	0.008	-27.3	0.832	-135
550	0.907	-166	5.54	37.0	0.007	-32.0	0.846	-140
600	0.913	-169	4.84	33.5	0.006	-26.7	0.857	-143
650	0.912	-171	4.27	30.1	0.005	-27.8	0.870	-147
700	0.913	-174	3.76	27.2	0.004	-20.3	0.878	-150
750	0.918	-176	3.35	24.4	0.003	-21.1	0.884	-154
800	0.923	-178	3.04	22.4	0.003	3.42	0.893	-157
850	0.920	-180	2.71	19.4	0.002	8.94	0.893	-160
900	0.925	178	2.47	18.6	0.002	33.0	0.899	-163
950	0.923	176	2.25	15.6	0.003	49.9	0.906	-166
1000	0.926	174	2.03	14.0	0.003	72.7	0.908	-168
1050	0.930	173	1.87	11.7	0.004	64.9	0.912	-172
1100	0.934	171	1.73	10.2	0.004	77.4	0.916	-173
1150	0.935	170	1.58	7.41	0.005	77.4	0.923	-176
1200	0.936	168	1.46	7.51	0.005	81.9	0.925	-178
1250	0.939	166	1.36	3.04	0.006	84.2	0.933	180
1300	0.940	165	1.21	2.04	0.006	82.5	0.933	178
1350	0.944	164	1.16	0.36	0.007	84.9	0.943	175
1400	0.943	162	1.05	-2.49	0.008	83.4	0.943	174
1450	0.947	161	0.983	-3.67	0.008	86.2	0.951	171
1500	0.950	160	0.926	-5.37	0.009	84.4	0.949	170
1550	0.950	158	0.851	-9.52	0.009	84.1	0.962	168
1600	0.948	157	0.764	-7.87	0.010	85.6	0.950	166
1650	0.950	156	0.770	-11.0	0.010	82.5	0.967	165
1700	0.948	155	0.682	-13.6	0.010	81.2	0.958	164
1750	0.953	154	0.658	-13.8	0.010	82.4	0.964	162
1800	0.950	152	0.611	-18.6	0.011	78.7	0.968	160
1850	0.951	151	0.561	-18.4	0.012	78.6	0.972	160
1900	0.948	150	0.542	-18.1	0.012	79.4	0.962	157
1950	0.947	149	0.549	-20.8	0.014	75.7	0.976	156
2000	0.946	148	0.493	-22.0	0.013	79.0	0.969	155
2050	0.944	146	0.477	-23.5	0.013	79.6	0.967	154
2100	0.940	145	0.446	-25.3	0.013	73.6	0.975	152
2150	0.942	144	0.449	-24.7	0.014	77.4	0.968	151
2200	0.942	142	0.425	-28.5	0.014	75.9	0.964	149

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