

PD60030 PD60030S RF POWER TRANSISTORS

The LdmoST Plastic FAMILY

Designed for GSM / EDGE / IS-97 applications

- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- P_{OUT} = 30 W with 10 dB gain @ 2000 MHz

DESCRIPTION

The PD60030 is a common source N-Channel, enhancement-mode lateral Field-Effect RF power transistor. It is designed for high gain, broad band commercial and industrial applications. It operates at 26 V in common source mode at frequencies of up to 2 GHz. PD60030 boasts the excellent gain, linearity and reliability of ST's latest LDMOS technology mounted in the first true SMD plastic RF power package, PowerSO-10RF. PD60030's superior linearity performance makes it an ideal solution for base station applications.

The PowerSO-10 plastic package, designed to offer high reliability, is the first ST JEDEC approved, high power SMD package. It has been specially optimized for RF needs and offers excellent RF performances and ease of assembly.

Mounting recommendations are available in **www.st.com/rf/** (look for application note AN1294)

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(straight lead)DEDE0030SBRANDING
DE0030S

ABSOLUTE MAXIMUM RATINGS (T_{CASE} = 25 °C)

Symbol	Parameter	Value	Unit
V _{(BR)DSS}	Drain-Source Voltage	65	V
V _{GS}	Gate-Source Voltage	± 20	V
۱ _D	Drain Current	TBD	A
PDISS	Power Dissipation (@ Tc = 70 °C)	TBD	W
Tj	Max. Operating Junction Temperature	165	°C
T _{STG}	Storage Temperature	-65 to +175	°C

THERMAL DATA ($T_{CASE} = 70 \degree C$)

R _{th(j-c)} Junction -Case Thermal Resistance	TBD	°C/W
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TARGET DATA

ELECTRICAL SPECIFICATION (T_{CASE} = 25 °C)

STATIC

Symbol		Test Conditio	ns	Min.	Тур.	Max.	Unit
V _{(BR)DSS}	$V_{GS} = 0 V$	I _{DS} = 1 mA		65			V
I _{DSS}	$V_{GS} = 0 V$	V _{DS} = 28 V				1	μΑ
I _{GSS}	V _{GS} = 20 V	$V_{DS} = 0 V$				1	μΑ
V _{GS(Q)}	V _{DS} = 28 V	I _D = 300 mA		2.5		5.0	V
V _{DS(ON)}	V _{GS} = 10 V	I _D = 3 A			TBD		V
G _{FS}	V _{DS} = 10 V	I _D = 3 A		2.0	TBD		mho
C _{ISS}	$V_{GS} = 0 V$	V _{DS} = 28 V	f = 1 MHz		TBD		pF
C _{OSS}	$V_{GS} = 0 V$	V _{DS} = 28 V	f = 1 MHz		TBD		pF
C _{RSS}	$V_{GS} = 0 V$	V _{DS} = 28 V	f = 1 MHz		TBD		pF

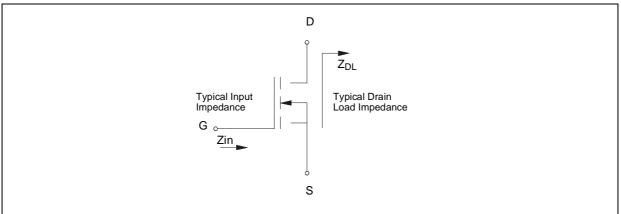
DYNAMIC

Symbol	Test Conditions				Тур.	Max.	Unit
Pout	V _{DD} = 26 V	I _{DQ} = 300 mA	f = 2000 MHz	30			W
IMD3	V _{DD} = 26 V	I _{DQ} = 300 mA	P _{OUT} = 30 W PEP		-32	-28	dBc
G _{PS}	V _{DD} = 26 V	I _{DQ} = 300 mA	P _{OUT} = 30 W PEP	10	11		dB
η _D	V _{DD} = 26 V	I _{DQ} = 300 mA	P _{OUT} = 30 W PEP		35		%
Load mismatch	V _{DD} = 26 V ALL PHASE A	I _{DQ} = 300 mA ANGLES	P _{OUT} = 30 W f = 2000 MHz	10:1			VSWR

note: f₁ = 2000 MHz

 $\mathsf{PEP}\ \mathsf{f}_2 = 2000.1\ \mathsf{MHz}$

IMPEDANCE DATA



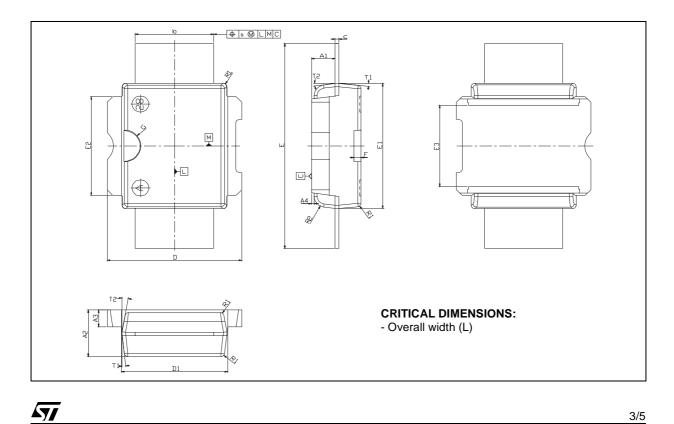
FREQ. MHz	Ζ_{ΙΝ} (Ω)	Ζ_{DL}(Ω)
1800		
1850		
1900		
1950		
2000		

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DIM.	mm			Inch			
DIN.	MIN.	TYP.	MAX	MIN.	TYP.	MAX	
A1	1.62	1.67	1.72	0.064	0.065	0.068	
A2	3.4	3.5	3.6	0.134	0.137	0.142	
A3	1.2	1.3	1.4	0.046	0.05	0.054	
A4	0.15	0.2	0.25	0.005	0.007	0.009	
а		0.2			0.007		
b	5.4	5.53	5.65	0.212	0.217	0.221	
С	0.23	0.27	0.32	0.008	0.01	0.012	
D	9.4	9.5	9.6	0.370	0.374	0.377	
D1	7.4	7.5	7.6	0.290	0.295	0.298	
E	15.15	15.4	15.65	0.595	0.606	0.615	
E1	9.3	9.4	9.5	0.365	0.37	0.375	
E2	7.3	7.4	7.5	0.286	0.292	0.294	
E3	5.9	6.1	6.3	0.231	0.24	0.247	
F		0.5			0.019		
G		1.2			0.047		
R1			0.25			0.01	
R2		0.8			0.031		
T1		6 deg			6 deg		
T2		10 deg			10 deg		

PowerSO-10RF Straight Lead MECHANICAL DATA

Note (1): Resin protrusions not included (max value: 0.15 mm per side)

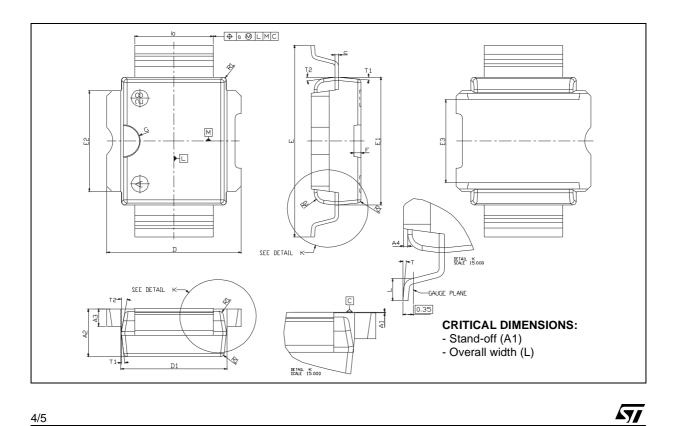


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DIM	mm			Inch			
DIM.	MIN.	TYP.	MAX	MIN.	TYP.	MAX	
A1	0	0.05	0.1	0.	0.0019	0.0038	
A2	3.4	3.5	3.6	0.134	0.137	0.142	
A3	1.2	1.3	1.4	0.046	0.05	0.054	
A4	0.15	0.2	0.25	0.005	0.007	0.009	
а		0.2			0.007		
b	5.4	5.53	5.65	0.212	0.217	0.221	
С	0.23	0.27	0.32	0.008	0.01	0.012	
D	9.4	9.5	9.6	0.370	0.374	0.377	
D1	7.4	7.5	7.6	0.290	0.295	0.298	
E	13.85	14.1	14.35	0.544	0.555	0.565	
E1	9.3	9.4	9.5	0.365	0.37	0.375	
E2	7.3	7.4	7.5	0.286	0.292	0.294	
E3	5.9	6.1	6.3	0.231	0.24	0.247	
F		0.5			0.019		
G		1.2			0.047		
L	0.8	1	1.1	0.030	0.039	0.042	
R1			0.25			0.01	
R2		0.8			0.031		
Т	2 deg	5 deg	8 deg	2 deg	5 deg	8 deg	
T1		6 deg			6 deg		
T2		10 deg			10 deg		

PowerSO-10RF Formed Lead (Gull Wing) MECHANICAL DATA

Note (1): Resin protrusions not included (max value: 0.15 mm per side)



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