



# PD57002-E PD57002S-E

## RF POWER transistor, LDMOST plastic family N-Channel enhancement-mode lateral MOSFETs

### General features

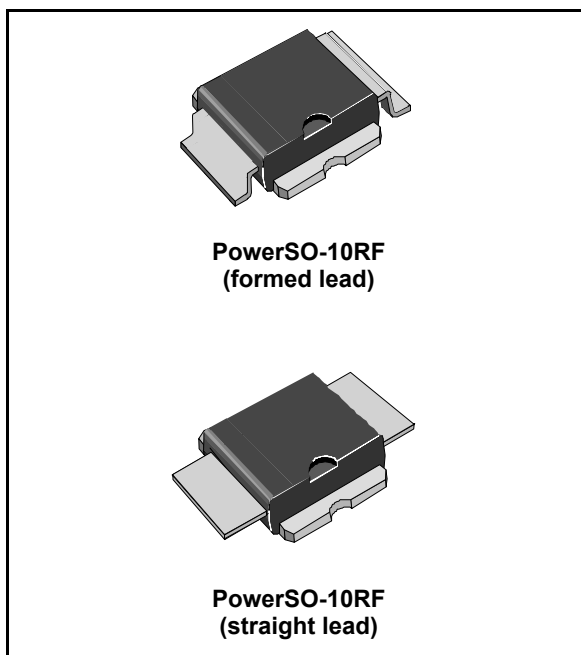
- Excellent thermal stability
- Common source configuration
- $P_{OUT} = 2W$  with 15dB gain @ 960MHz / 28V
- New RF plastic package

### Description

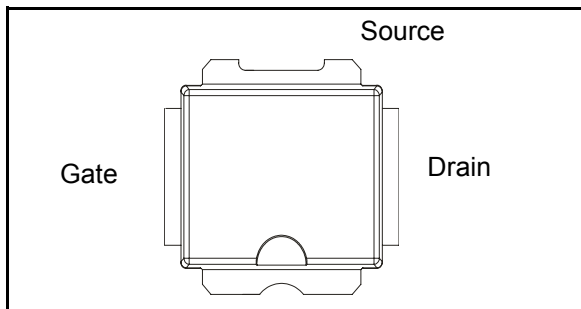
The PD57002 is a common source N-Channel, enhancement-mode lateral Field-Effect RF power transistor designed for broadband commercial and industrial applications at frequencies up to 1GHz. The PD57002 is designed for high gain and broadband performance operating in common source mode at 28 V. It is ideal for digital cellular BTS applications requiring high linearity.

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/](http://www.st.com/rf/) (look for application note AN1294)



### Pin connection



### Order codes

Part number	Package	Packing
PD57002-E	PowerSO-10RF (formed lead)	Tube
PD57002S-E	PowerSO-10RF (straight lead)	Tube

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# 1 Electrical data

## 1.1 Maximum ratings

Table 1. Absolute maximum ratings ( $T_{CASE} = 25^{\circ}C$ )

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-source voltage	65	V
$V_{GS}$	Gate-source voltage	$\pm 20$	V
$I_D$	Drain current	0.25	A
$P_{DISS}$	Power dissipation (@ $T_C = 70^{\circ}C$ )	4.75	W
$T_J$	Max. operating junction temperature	165	$^{\circ}C$
$T_{STG}$	Storage temperature	-65 to +150	$^{\circ}C$

## 1.2 Thermal data

Table 2. Thermal data

Symbol	Parameter	Value	Unit
$R_{thJC}$	Junction - case thermal resistance	20	$^{\circ}C/W$

## 2 Electrical Characteristics

$$T_{CASE} = +25\text{ }^{\circ}\text{C}$$

### 2.1 Static

**Table 3. Static**

Symbol	Test conditions			Min	Typ	Max	Unit
$I_{DSS}$	$V_{GS} = 0V$	$V_{DS} = 28V$				1	$\mu A$
$I_{GSS}$	$V_{GS} = 20V$	$V_{DS} = 0V$				1	$\mu A$
$V_{GS(Q)}$	$V_{DS} = 28V$	$I_D = 10mA$		2.0		5.0	V
$V_{DS(ON)}$	$V_{GS} = 10V$	$I_D = 125mA$			0.7	0.9	V
$G_{FS}$	$V_{DS} = 10V$	$I_D = 200mA$			--		mho
$C_{ISS}$	$V_{GS} = 0V$	$V_{DS} = 28V$	$f = 1MHz$		7.1		pF
$C_{OSS}$	$V_{GS} = 0V$	$V_{DS} = 28V$	$f = 1MHz$		5.8		pF
$C_{RSS}$	$V_{GS} = 0V$	$V_{DS} = 28V$	$f = 1MHz$		0.1		pF

### 2.2 Dynamic

**Table 4. Dynamic**

Symbol	Test conditions			Min	Typ	Max	Unit
$P_{1dB}$	$V_{DD} = 28V,$	$I_{DQ} = 10mA$	$f = 960MHz$	2			W
$G_P$	$V_{DD} = 28V,$	$I_{DQ} = 10mA,$	$P_{OUT} = 2W,$	15			dB
$h_D$	$V_{DD} = 28V,$	$I_{DQ} = 10mA,$	$P_{OUT} = 2W,$	45			%
Load mismatch	$V_{DD} = 28V,$	$I_{DQ} = 10mA,$	$P_{OUT} = 2W,$	10:1			VSWR
	All phase angles						

### 3 Impedance

Figure 1. Current conventions

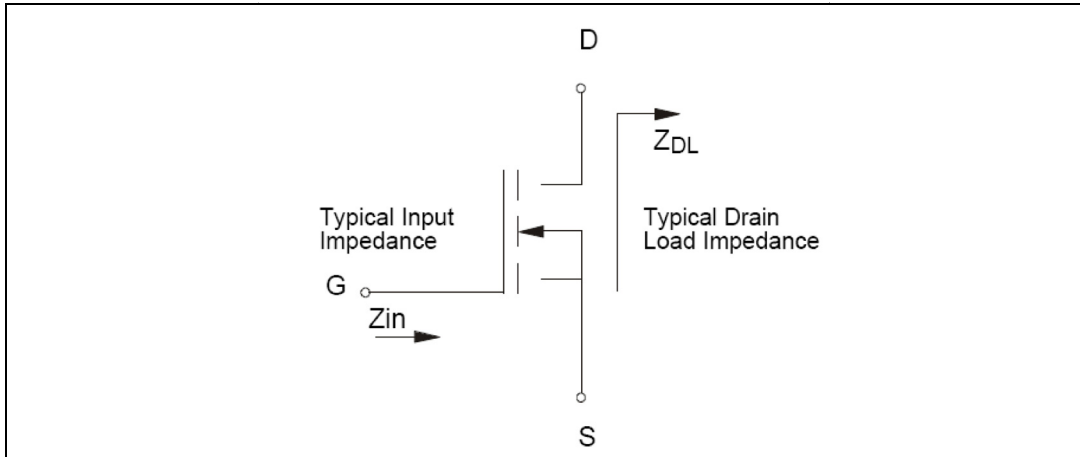
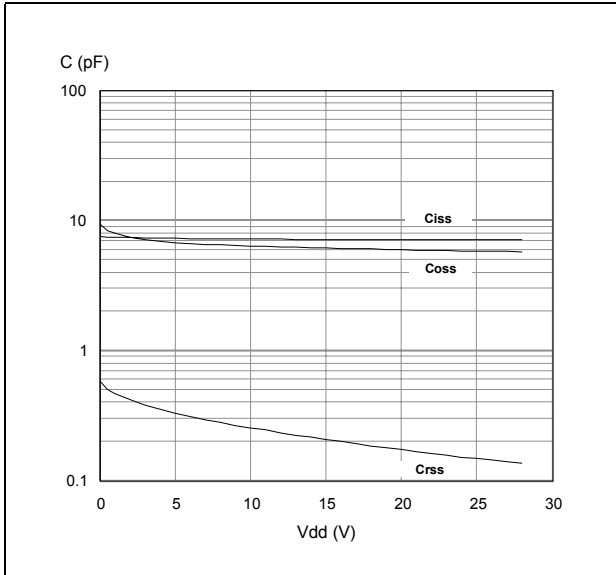


Table 5. Impedance data

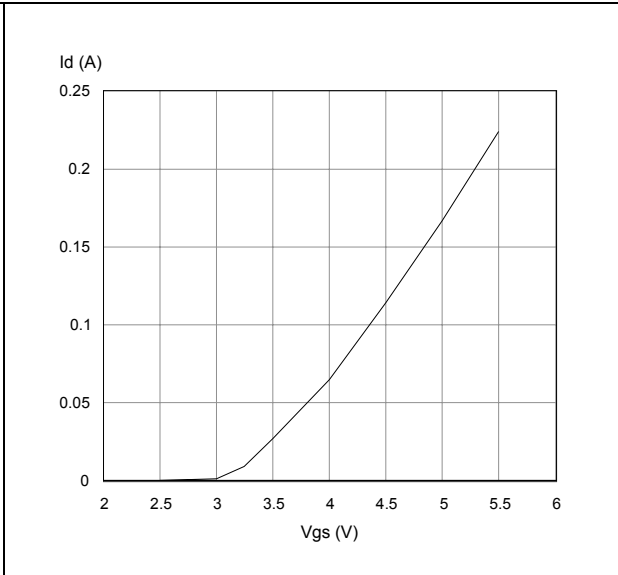
Freq. (MHz)	$Z_{IN} (\Omega)$	$Z_{DL}(\Omega)$
925	1.894 - j 13.43	6.445 + j 23.60
945	2.440 - j 12.53	7.245 + j 25.09
960	2.760 - j 12.13	7.715 + j 25.69

# 4 Typical performance

**Figure 2. Capacitance vs supply voltage**



**Figure 3. Drain current vs gate source voltage**



**Figure 4. Gate-source voltage vs case temperature**

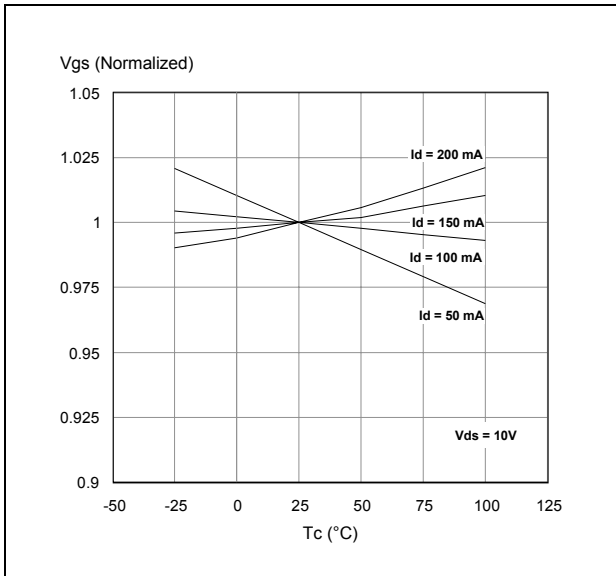


Figure 5. Output power vs input power

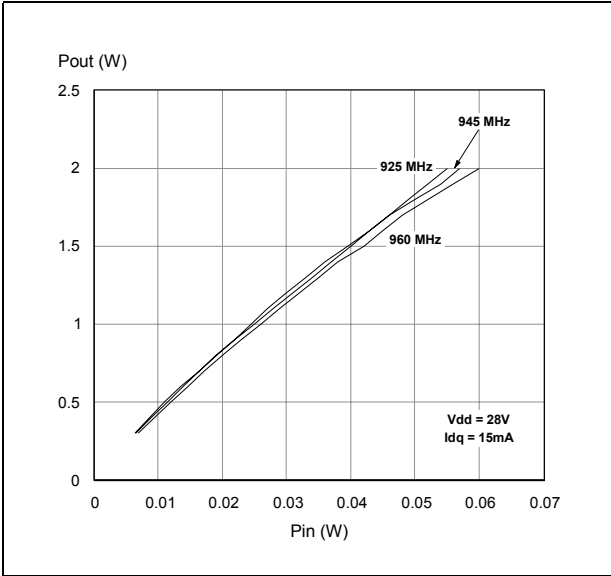


Figure 6. Input return loss vs output power

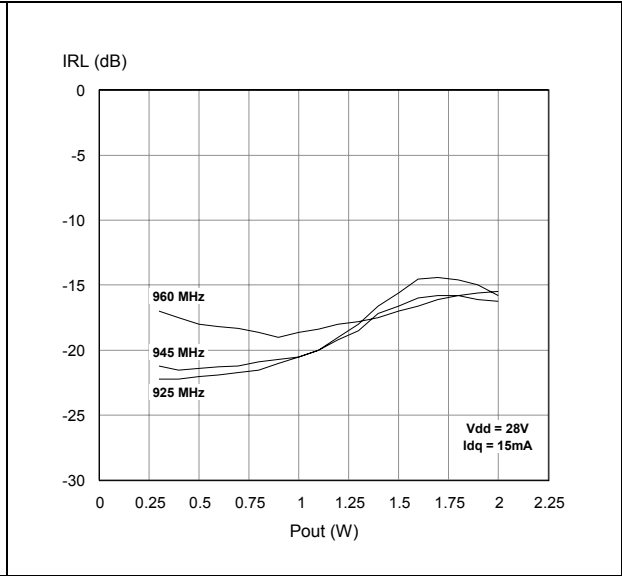


Figure 7. Power gain vs output power

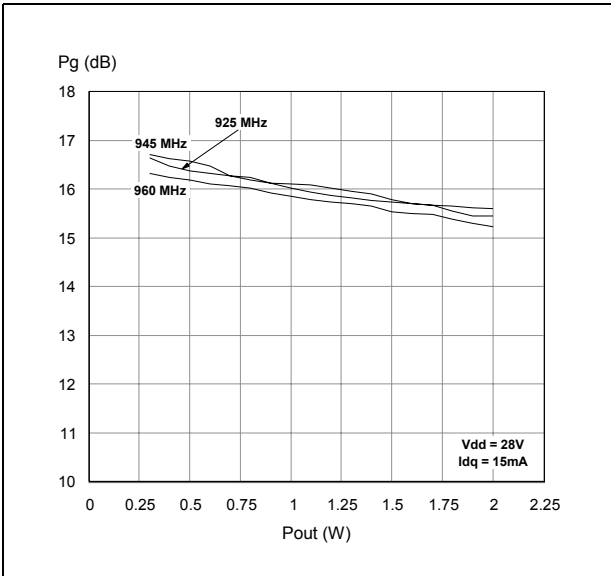


Figure 8. Efficiency vs output power

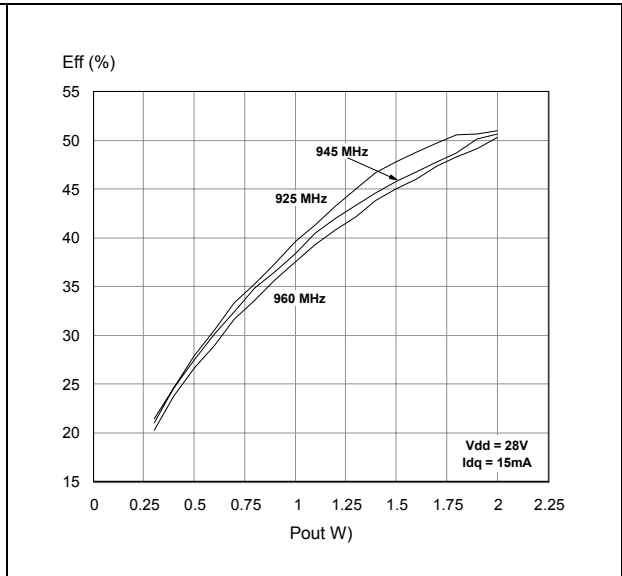


Figure 9. Output power vs drain voltage

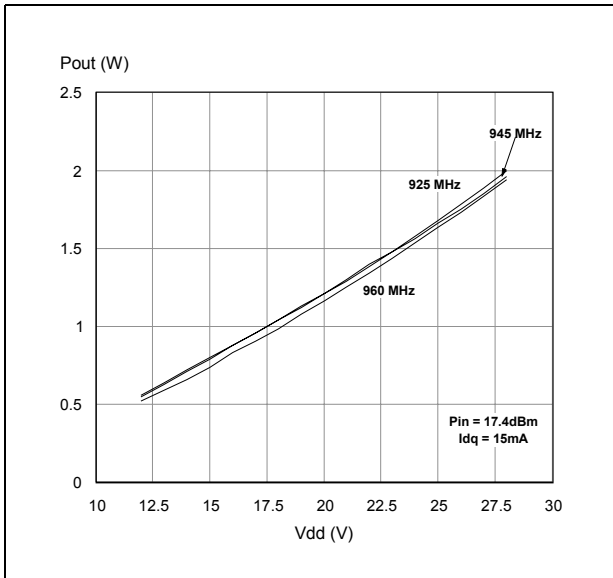


Figure 10. Efficiency vs drain voltage

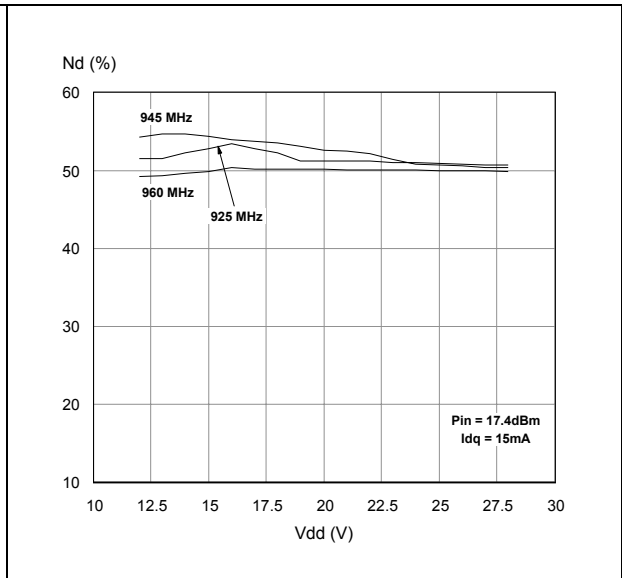


Figure 11. Output power vs drain current

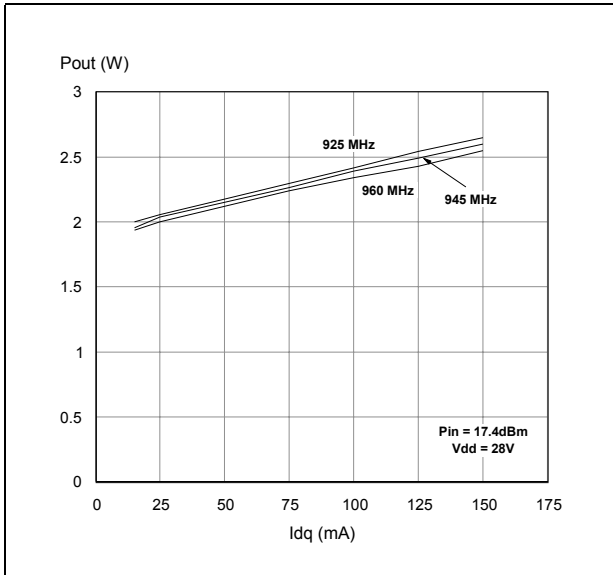


Figure 12. Efficiency vs drain current

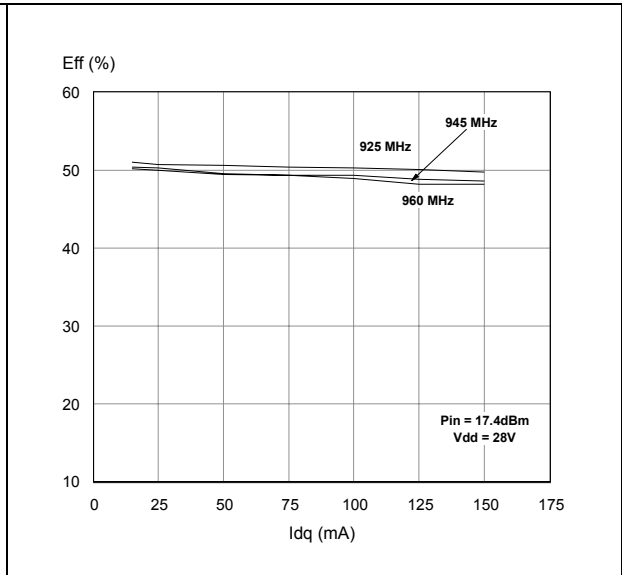
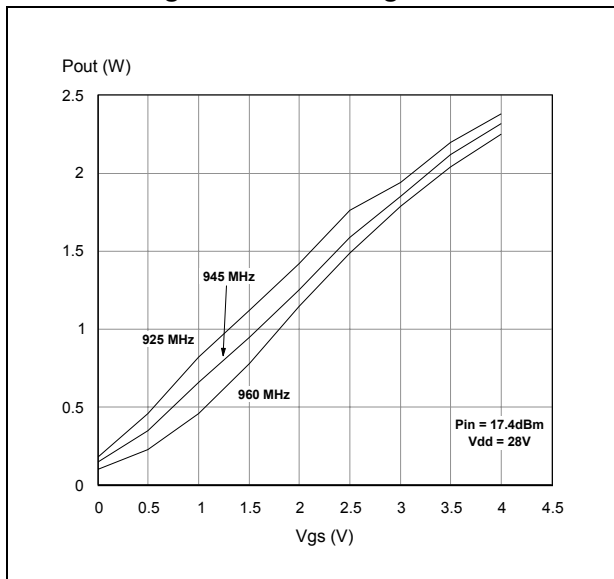




Figure 13. Output power vs gate-source voltage



## 5 Common source s-parameter

### 5.1 PD57002 ( $V_{DS} = 28V$ $I_{DS} = 75mA$ )

**Table 6. S-parameter**

FREQ (MHz)	S <sub>11</sub>	S <sub>11</sub> ∠Φ	S <sub>21</sub>	S <sub>21</sub> ∠Φ	S <sub>12</sub>	S <sub>12</sub> ∠Φ	S <sub>22</sub>	S <sub>22</sub> ∠Φ
50	0.980	-16	10.01	166	0.006	75	0.963	-12
100	0.972	-31	9.63	153	0.012	64	0.949	-23
150	0.966	-46	9.04	141	0.017	53	0.942	-35
200	0.951	-59	8.46	129	0.020	42	0.918	-45
250	0.944	-70	7.78	119	0.023	32	0.911	-54
300	0.936	-80	7.09	110	0.025	23	0.896	-63
350	0.925	-90	6.50	101	0.026	16	0.885	-70
400	0.926	-98	5.93	93	0.026	8	0.888	-77
450	0.924	-105	5.43	85	0.026	2	0.886	-83
500	0.919	-112	4.96	78	0.027	-2	0.897	-89
550	0.921	-117	4.52	72	0.027	-9	0.894	-95
600	0.915	-122	4.17	66	0.026	-15	0.896	-99
650	0.920	-127	3.84	61	0.026	-20	0.904	-104
700	0.922	-131	3.55	56	0.024	-25	0.914	-108
750	0.921	-135	3.31	51	0.024	-29	0.920	-112
800	0.922	-138	3.07	46	0.023	-33	0.929	-116
850	0.924	-141	2.87	42	0.022	-38	0.937	-119
900	0.922	-145	2.69	38	0.021	-39	0.934	-123
950	0.926	-147	2.52	34	0.020	-43	0.931	-125
1000	0.919	-150	2.38	30	0.019	-45	0.938	-128
1050	0.920	-153	2.24	27	0.018	-49	0.941	-131
1100	0.918	-155	2.13	23	0.018	-51	0.941	-134
1150	0.916	-158	2.02	19	0.017	-56	0.943	-136
1200	0.921	-160	1.92	16	0.016	-60	0.940	-138
1250	0.912	-162	1.84	12	0.015	-62	0.943	-141
1300	0.914	-164	1.76	9	0.014	-70	0.944	-143
1350	0.914	-166	1.68	6	0.013	-71	0.942	-144
1400	0.908	-168	1.61	3	0.013	-75	0.947	-146
1450	0.909	-170	1.54	0	0.012	-88	0.940	-148
1500	0.900	-172	1.45	-3	0.011	-108	0.934	-149

5.2 PD57002 ( $V_{DS} = 28V$   $I_{DS} = 150mA$ )

Table 7. S-parameter

FREQ (MHz)	$ S_{11} $	$S_{11}\angle\Phi$	$ S_{21} $	$S_{21}\angle\Phi$	$ S_{12} $	$S_{12}\angle\Phi$	$ S_{22} $	$S_{22}\angle\Phi$
50	0.998	-17	10.95	166	0.006	77	0.960	-12
100	0.989	-32	10.50	153	0.011	63	0.946	-24
150	0.975	-47	9.83	140	0.016	52	0.937	-35
200	0.965	-61	9.15	128	0.020	41	0.912	-45
250	0.954	-72	8.40	118	0.022	31	0.904	-54
300	0.943	-82	7.63	108	0.024	22	0.885	-63
350	0.939	-92	6.98	100	0.025	15	0.876	-70
400	0.934	-100	6.35	92	0.025	7	0.880	-77
450	0.931	-107	5.81	84	0.026	2	0.877	-83
500	0.930	-113	5.30	77	0.026	-3	0.885	-89
550	0.927	-119	4.82	71	0.025	-9	0.886	-95
600	0.925	-124	4.45	65	0.025	-15	0.886	-99
650	0.927	-128	4.09	60	0.025	-21	0.896	-104
700	0.926	-133	3.78	55	0.023	-25	0.906	-108
750	0.930	-136	3.52	50	0.022	-29	0.912	-112
800	0.930	-140	3.27	45	0.021	-33	0.923	-115
850	0.931	-143	3.06	41	0.021	-36	0.929	-119
900	0.930	-146	2.87	36	0.200	-40	0.930	-122
950	0.929	-149	2.68	33	0.019	-42	0.928	-125
1000	0.931	-152	2.53	29	0.018	-46	0.933	-128
1050	0.926	-154	2.38	25	0.017	-48	0.932	-130
1100	0.927	-157	2.27	21	0.016	-54	0.935	-133
1150	0.926	-159	2.15	18	0.016	-57	0.938	-136
1200	0.925	-161	2.04	14	0.015	-58	0.940	-138
1250	0.923	-164	1.95	11	0.014	-62	0.941	-140
1300	0.918	-165	1.87	8	0.013	-68	0.939	-142
1350	0.917	-167	1.79	4	0.012	-71	0.936	-144
1400	0.916	-169	1.72	1	0.012	-74	0.939	-146
1450	0.911	-171	1.63	-2	0.011	-89	0.934	-147
1500	0.904	-172	1.54	-5	0.011	-109	0.933	-148

### 5.3 PD57002 ( $V_{DS} = 13.5V$ $I_{DS} = 75mA$ )

**Table 8. S-parameter**

FREQ (MHz)	$ S_{11} $	$S_{11}\angle\Phi$	$ S_{21} $	$S_{21}\angle\Phi$	$ S_{12} $	$S_{12}\angle\Phi$	$ S_{22} $	$S_{22}\angle\Phi$
50	0.969	-17	10.14	166	0.009	74	0.973	-14
100	0.959	-33	9.72	152	0.017	63	0.954	-27
150	0.949	-48	9.06	139	0.243	50	0.944	-40
200	0.925	-61	8.31	127	0.030	39	0.910	-51
250	0.915	-73	7.57	117	0.033	28	0.901	-61
300	0.906	-83	6.82	108	0.035	20	0.875	-70
350	0.890	-92	6.23	99	0.038	13	0.862	-77
400	0.892	-100	5.65	91	0.039	5	0.866	-85
450	0.888	-106	5.19	84	0.038	-2	0.858	-90
500	0.881	-113	4.72	77	0.039	-6	0.870	-96
550	0.888	-119	4.30	71	0.039	-13	0.873	-102
600	0.882	-123	3.95	65	0.038	-18	0.872	-106
650	0.888	-128	3.62	60	0.038	-24	0.880	-111
700	0.893	-132	3.36	55	0.036	-28	0.890	-116
750	0.890	-135	3.12	51	0.036	-32	0.895	-119
800	0.895	-139	2.92	46	0.034	-36	0.904	-122
850	0.895	-142	2.73	42	0.033	-41	0.911	-126
900	0.893	-145	2.56	37	0.032	-44	0.914	-129
950	0.898	-148	2.40	34	0.030	-47	0.911	-132
1000	0.892	-150	2.25	30	0.030	-50	0.918	-134
1050	0.895	-153	2.13	26	0.029	-54	0.921	-137
1100	0.896	-155	2.20	23	0.028	-58	0.922	-140
1150	0.894	-158	1.92	19	0.027	-60	0.926	-142
1200	0.900	-160	1.83	16	0.026	-64	0.924	-144
1250	0.890	-162	1.74	12	0.025	-67	0.923	-147
1300	0.895	-164	1.67	9	0.024	-72	0.922	-149
1350	0.898	-166	1.58	6	0.023	-73	0.919	-150
1400	0.893	-169	1.51	3	0.023	-79	0.920	-152
1450	0.895	-170	1.43	0	0.021	-86	0.916	-153
1500	0.885	-172	1.35	-1	0.020	-95	0.912	-154

## 5.4 PD57002 ( $V_{DS} = 13.5V$ $I_{DS} = 150mA$ )

**Table 9. S-parameter**

FREQ (MHz)	$ S_{11} $	$S_{11}\angle\Phi$	$ S_{21} $	$S_{21}\angle\Phi$	$ S_{12} $	$S_{12}\angle\Phi$	$ S_{22} $	$S_{22}\angle\Phi$
50	0.986	-18	11.58	165	0.009	75	0.964	-14
100	0.972	-34	11.04	151	0.017	62	0.940	-28
150	0.955	-50	10.25	138	0.024	49	0.931	-41
200	0.934	-63	9.35	126	0.029	38	0.891	-52
250	0.921	-75	8.48	115	0.032	28	0.883	-62
300	0.909	-85	7.59	106	0.034	19	0.856	-71
350	0.897	-94	6.93	98	0.036	12	0.841	-78
400	0.895	-102	6.27	90	0.037	4	0.847	-86
450	0.892	-109	5.76	83	0.037	-2	0.840	-91
500	0.889	-115	5.23	76	0.037	-7	0.852	-97
550	0.889	-121	4.75	70	0.037	-13	0.852	-103
600	0.886	-125	4.37	65	0.037	-19	0.853	-107
650	0.891	-130	4.00	59	0.036	-23	0.863	-111
700	0.892	-134	3.72	55	0.035	-29	0.871	-116
750	0.895	-137	3.45	50	0.034	-32	0.878	-119
800	0.897	-141	3.23	46	0.033	-36	0.885	-123
850	0.898	-144	3.02	41	0.032	-40	0.897	-126
900	0.898	-147	2.84	37	0.031	-43	0.895	-129
950	0.902	-149	2.66	33	0.029	-47	0.896	-132
1000	0.90058	-152	2.50	29	0.028	-49	0.904	-134
1050	0.897	-155	2.36	26	0.028	-53	0.906	-137
1100	0.900	-157	2.24	22	0.027	-56	0.909	-140
1150	0.898	-159	2.13	19	0.026	-59	0.912	-142
1200	0.901	-162	2.03	15	0.025	-63	0.910	-144
1250	0.898	-164	1.92	12	0.024	-65	0.913	-147
1300	0.897	-166	1.84	8	0.023	-71	0.912	-149
1350	0.897	-167	1.75	5	0.022	-74	0.909	-150
1400	0.896	-170	1.67	2	0.021	-76	0.912	-152
1450	0.895	-171	1.58	-1	0.021	-85	0.905	-153
1500	0.888	-173	1.50	-2	0.020	-97	0.900	-154

## 5.5 PD57002S ( $V_{DS} = 28V$ $I_{DS} = 75mA$ )

**Table 10. S-parameter**

FREQ (MHz)	$ S_{11} $	$S_{11}\angle\Phi$	$ S_{21} $	$S_{21}\angle\Phi$	$ S_{12} $	$S_{12}\angle\Phi$	$ S_{22} $	$S_{22}\angle\Phi$
50	0.993	-16	9.99	166	0.007	77	0.929	-12
100	0.987	-31	9.60	153	0.013	64	0.916	-24
150	0.979	-46	9.03	141	0.018	53	0.911	-36
200	0.961	-59	8.36	130	0.022	42	0.889	-46
250	0.950	-71	7.66	119	0.025	32	0.883	-56
300	0.933	-80	6.95	111	0.027	24	0.864	-64
350	0.928	-89	6.39	102	0.029	17	0.860	-71
400	0.924	-97	5.84	94	0.030	8	0.866	-79
450	0.922	-103	5.36	87	0.029	2	0.862	-85
500	0.924	-110	4.90	80	0.030	-2	0.872	-90
550	0.922	-115	4.48	74	0.030	-9	0.877	-96
600	0.923	-120	4.12	69	0.030	-14	0.877	-101
650	0.922	-125	3.78	63	0.029	-19	0.890	-105
700	0.923	-128	3.51	58	0.028	-24	0.892	-110
750	0.925	-132	3.26	54	0.027	-27	0.893	-113
800	0.925	-135	3.04	49	0.026	-31	0.900	-117
850	0.931	-138	2.85	45	0.027	-35	0.907	-120
900	0.933	-141	2.66	41	0.026	-38	0.912	-123
950	0.934	-144	2.49	37	0.024	-41	0.914	-125
1000	0.936	-147	2.35	33	0.023	-45	0.918	-128
1050	0.937	-149	2.21	30	0.023	-47	0.927	-130
1100	0.938	-151	2.10	26	0.022	-50	0.929	-133
1150	0.936	-154	1.99	23	0.022	-53	0.935	-135
1200	0.936	-156	1.91	20	0.021	-56	0.941	-137
1250	0.934	-158	1.81	17	0.020	-60	0.945	-139
1300	0.933	-160	1.75	14	0.019	-65	0.945	-140
1350	0.930	-162	1.67	10	0.018	-67	0.940	-142
1400	0.920	-164	1.58	8	0.018	-69	0.938	-143
1450	0.916	-166	1.51	5	0.017	-78	0.935	-144
1500	0.907	-167	1.43	3	0.017	-88	0.932	-145

5.6 PD57002S ( $V_{DS} = 28V$   $I_{DS} = 150mA$ )

Table 11. S-parameter

FREQ (MHz)	$ S_{11} $	$S_{11}\angle\Phi$	$ S_{21} $	$S_{21}\angle\Phi$	$ S_{12} $	$S_{12}\angle\Phi$	$ S_{22} $	$S_{22}\angle\Phi$
50	0.997	-17	10.84	166	0.007	77	0.924	-12
100	0.988	-32	10.39	153	0.012	62	0.909	-24
150	0.972	-47	9.73	140	0.017	51	0.904	-36
200	0.962	-60	8.98	129	0.021	42	0.880	-47
250	0.950	-72	8.21	118	0.024	31	0.874	-56
300	0.942	-82	7.43	110	0.026	22	0.856	-64
350	0.934	-91	6.82	101	0.027	15	0.852	-71
400	0.932	-99	6.22	93	0.028	8	0.857	-79
450	0.928	-106	5.70	86	0.028	3	0.853	-84
500	0.924	-112	5.20	79	0.028	-3	0.863	-90
550	0.923	-117	4.74	73	0.029	-9	0.871	-96
600	0.922	-122	4.37	98	0.028	-14	0.869	-100
650	0.922	-126	4.00	62	0.028	-19	0.885	-105
700	0.923	-130	3.71	57	0.027	-25	0.885	-109
750	0.927	-134	3.46	53	0.026	-27	0.888	-113
800	0.926	-137	3.22	48	0.025	-30	0.896	-116
850	0.926	-140	3.01	44	0.024	-35	0.905	-119
900	0.927	-143	2.82	40	0.023	-37	0.908	-122
950	0.927	-146	2.64	36	0.024	-41	0.908	-125
1000	0.928	-148	2.48	32	0.022	-43	0.915	-128
1050	0.927	-151	2.34	29	0.022	-48	0.923	-130
1100	0.928	-153	2.22	25	0.021	-50	0.923	-133
1150	0.927	-155	2.11	22	0.020	-54	0.932	-135
1200	0.925	-157	2.01	18	0.019	-57	0.936	-137
1250	0.926	-159	1.91	15	0.019	-60	0.936	-138
1300	0.921	-161	1.84	12	0.018	-64	0.940	-140
1350	0.919	-163	1.76	9	0.017	-67	0.936	-141
1400	0.915	-164	1.67	7	0.017	-69	0.935	-143
1450	0.912	-166	1.59	4	0.016	-77	0.933	-144
1500	0.907	-168	1.51	2	0.015	-89	0.927	-144

5.7 PD57002S ( $V_{DS} = 13.5V$   $I_{DS} = 75mA$ )

Table 12. S-parameter

FREQ (MHz)	$ S_{11} $	$S_{11}\angle\Phi$	$ S_{21} $	$S_{21}\angle\Phi$	$ S_{12} $	$S_{12}\angle\Phi$	$ S_{22} $	$S_{22}\angle\Phi$
50	0.996	-17	10.21	165	0.010	73	0.966	-14
100	0.982	-33	9.74	152	0.019	63	0.946	-28
150	0.962	-48	9.07	139	0.027	50	0.938	-41
200	0.946	-61	8.29	127	0.033	39	0.901	-53
250	0.931	-73	7.52	117	0.037	29	0.891	-63
300	0.919	-83	6.73	108	0.040	20	0.863	-72
350	0.911	-92	6.16	100	0.042	13	0.854	-78
400	0.906	-99	5.59	92	0.043	5	0.859	-86
450	0.903	-106	5.11	85	0.043	-1	0.851	-92
500	0.901	-112	4.65	78	0.044	-6	0.860	-97
550	0.900	-117	4.23	73	0.044	-12	0.865	-103
600	0.900	-122	3.89	67	0.044	-17	0.863	-107
650	0.902	-126	3.56	62	0.042	-22	0.879	-112
700	0.902	-130	3.30	57	0.041	-27	0.881	-117
750	0.910	-133	3.07	53	0.040	-30	0.881	-119
800	0.908	-136	2.86	49	0.040	-34	0.891	-123
850	0.910	-139	2.68	44	0.039	-38	0.894	-126
900	0.914	-142	2.51	40	0.038	-42	0.899	-128
950	0.914	-145	2.35	37	0.037	-45	0.902	-131
1000	0.917	-147	2.21	33	0.036	-49	0.907	-133
1050	0.919	-150	2.09	30	0.035	-51	0.918	-136
1100	0.921	-152	1.98	26	0.034	-53	0.914	-138
1150	0.921	-154	1.89	24	0.034	-58	0.928	-140
1200	0.920	-156	1.81	20	0.032	-61	0.927	-142
1250	0.920	-158	1.72	17	0.032	-64	0.930	-144
1300	0.919	-160	1.65	14	0.032	-68	0.928	-146
1350	0.917	-162	1.58	10	0.029	-71	0.921	-147
1400	0.913	-163	1.50	8	0.029	-73	0.923	-149
1450	0.909	-165	1.43	5	0.029	-77	0.921	-149
1500	0.905	-167	1.35	4	0.028	-84	0.913	-150



5.8 PD57002S ( $V_{DS} = 13.5V$   $I_{DS} = 150mA$ )

Table 13. S-parameter

FREQ (MHz)	$ S_{11} $	$S_{11}\angle\Phi$	$ S_{21} $	$S_{21}\angle\Phi$	$ S_{12} $	$S_{12}\angle\Phi$	$ S_{22} $	$S_{22}\angle\Phi$
50	0.990	-18	11.68	165	0.010	74	0.953	-15
100	0.976	-35	11.11	151	0.019	63	0.932	-28
150	0.952	-50	10.31	138	0.027	49	0.924	-42
200	0.933	-64	9.36	126	0.032	38	0.882	-54
250	0.917	-75	8.44	115	0.036	28	0.872	-64
300	0.905	-85	7.53	107	0.038	19	0.841	-73
350	0.895	-94	6.87	99	0.040	12	0.832	-79
400	0.891	-102	6.22	91	0.041	4	0.838	-87
450	0.886	-108	5.69	84	0.042	-1	0.829	-93
500	0.884	-114	5.17	77	0.042	-7	0.840	-98
550	0.884	-119	4.70	72	0.042	-13	0.847	-104
600	0.883	-124	4.33	66	0.041	-17	0.844	-108
650	0.886	-128	3.95	61	0.041	-22	0.859	-112
700	0.889	-132	3.67	57	0.039	-28	0.860	-117
750	0.892	-135	3.41	52	0.039	-30	0.862	-119
800	0.893	-138	3.18	48	0.038	-35	0.873	-123
850	0.894	-141	2.99	44	0.037	-38	0.876	-126
900	0.894	-144	2.79	40	0.036	-41	0.883	-128
950	0.898	-146	2.62	36	0.035	-45	0.883	-131
1000	0.9	-149	2.46	33	0.035	-47	0.893	-133
1050	0.902	-151	2.32	29	0.034	-51	0.903	-136
1100	0.903	-153	2.21	26	0.033	-54	0.903	-139
1150	0.902	-155	2.10	23	0.032	-58	0.914	-140
1200	0.903	-157	2.01	19	0.031	-61	0.916	-142
1250	0.904	-159	1.91	16	0.031	-63	0.919	-144
1300	0.901	-161	1.85	13	0.029	-68	0.921	-146
1350	0.901	-163	1.76	10	0.028	-71	0.911	-147
1400	0.896	-165	1.67	8	0.028	-73	0.912	-149
1450	0.894	-166	1.59	5	0.028	-78	0.904	-149
1500	0.891	-168	1.51	3	0.026	-85	0.901	-150

## 6 Package mechanical data

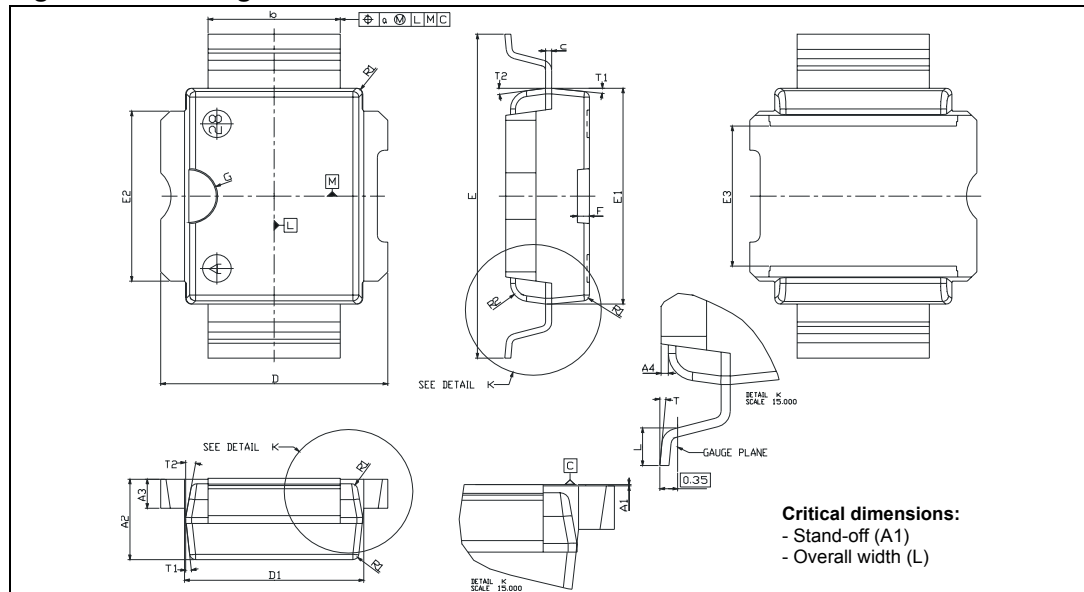
In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: [www.st.com](http://www.st.com)

**Table 14. PowerSO-10RF Formed lead (Gull Wing) Mechanical data**

Dim	mm			Inch		
	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
a		0.2			0.007	
b	5.4	5.53	5.65	0.212	0.217	0.221
c	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	
T	2 deg	5 deg	8 deg	2 deg	5 deg	8 deg
T1		6 deg			6 deg	
T2		10 deg			10 deg	

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

**Figure 14. Package dimensions**



**Table 15. PowerSO-10RF Straight Lead Mechanical data**

Dim	mm.			Inch		
	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
a		0.2			0.007	
b	5.4	5.53	5.65	0.212	0.217	0.221
c	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	

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

**Figure 15. Package dimensions**

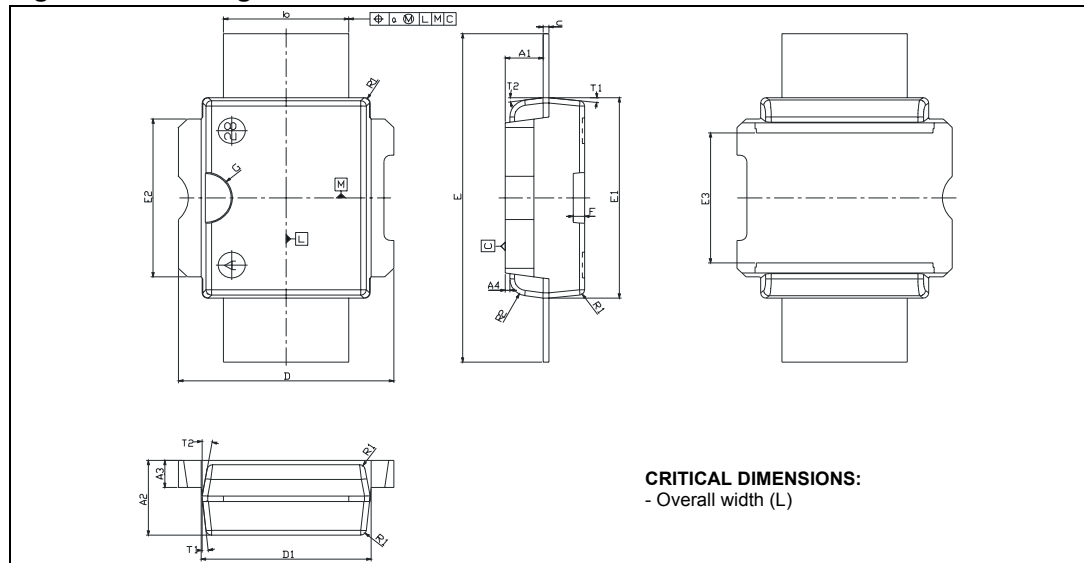
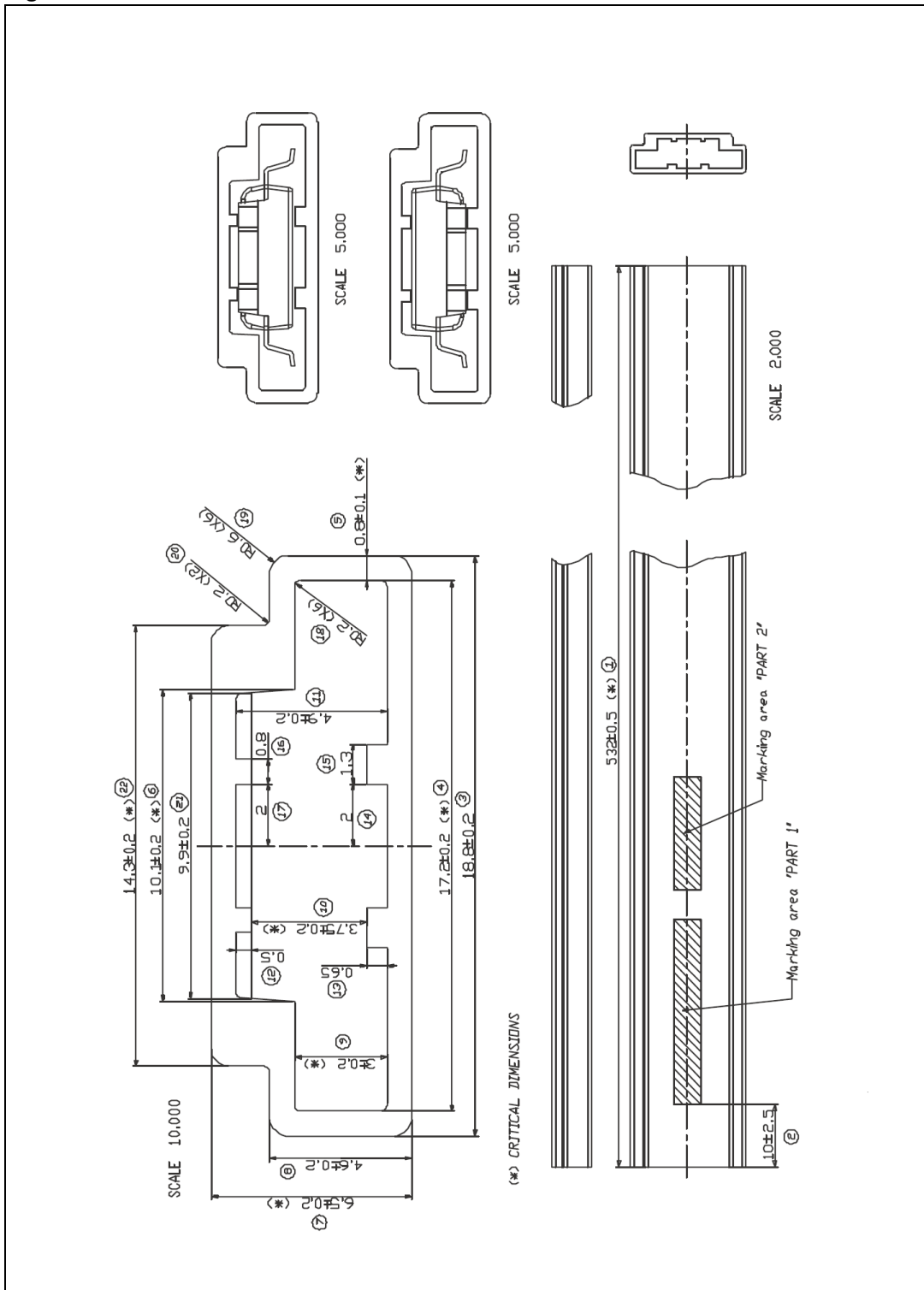


Figure 16. Tube information



## 7 Revision history

**Table 16. Revision history**

Date	Revision	Changes
11-May-2006	1	Initial release

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