



# RADIATION TEST SUMMARY

PART TYPE : 2N6849

DESCRIPTION : P-CHANNEL MOSFET

REPORT NO. : RD 155

PARAMETERS PLOTTED :

V<sub>gs(th)</sub>  
R<sub>DS(on)</sub>

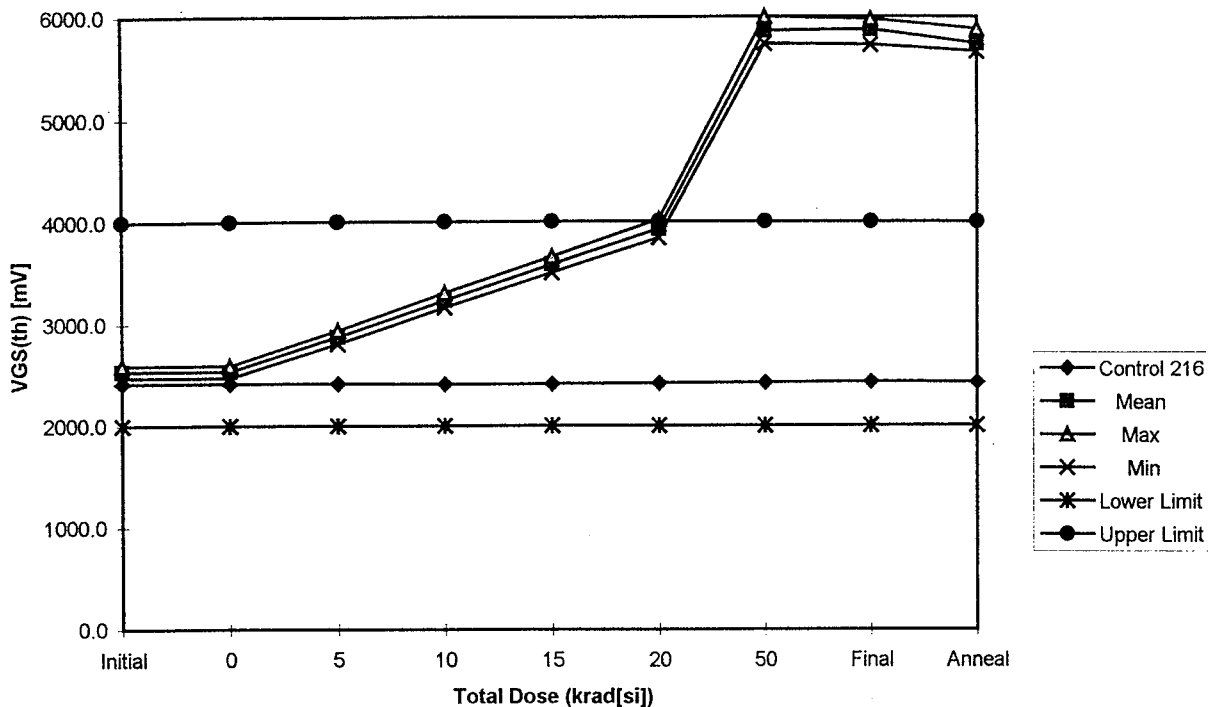
NOTE :

The results for I<sub>gss</sub>, I<sub>dss</sub> and V(BR)DSS showed no significant change and hence plots were not considered necessary.

Specification: PO-PL-IGG-PL-0003, Appendix 1



Radiation Results for 2N6849



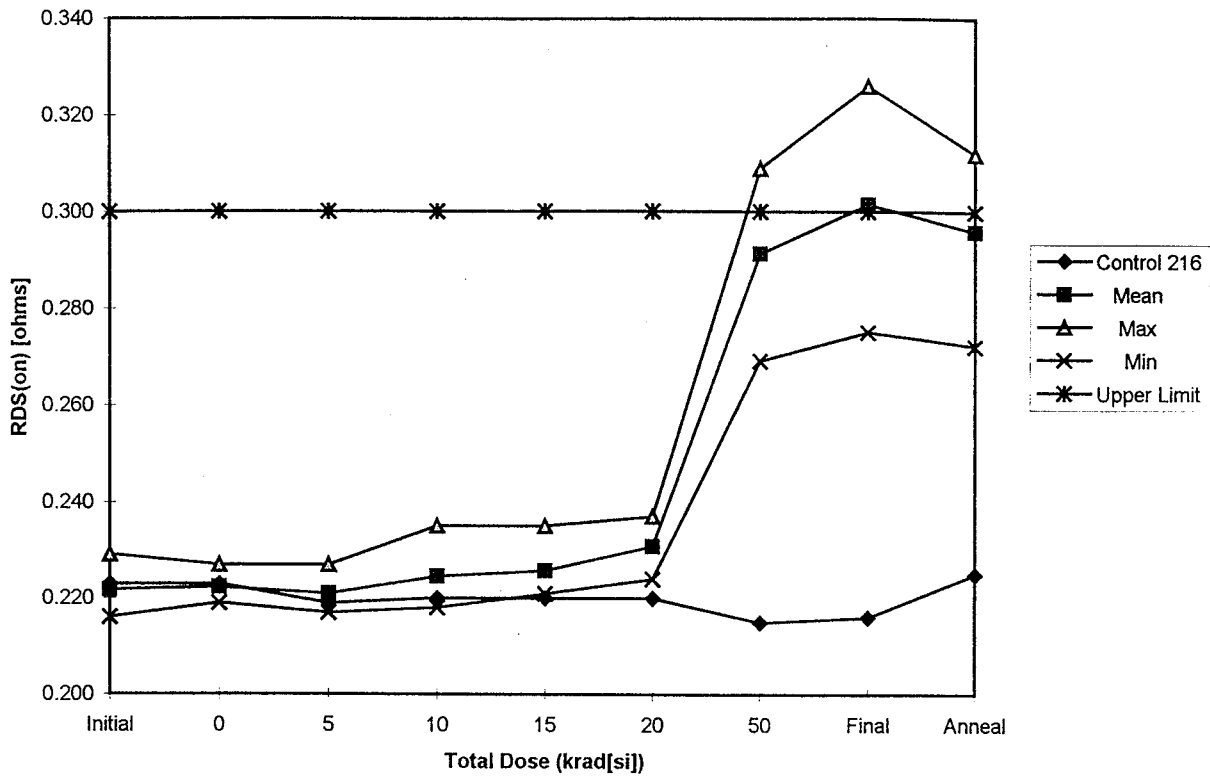
Dose (kRad)	Control 216 (mV)	Mean (mV)	Max (mV)	Min (mV)	Lower Limit (mV)	Upper Limit (mV)	Std.Dev.
Initial	2415.6	2531.0	2588.8	2473.8	2000	4000	49.04
0	2417.2	2531.3	2588.3	2473.9	2000	4000	48.84
5	2412.6	2874.3	2937.1	2805.8	2000	4000	54.02
10	2411.8	3228.6	3301.1	3158.5	2000	4000	58.24
15	2410.8	3577.0	3656.3	3498.9	2000	4000	64.28
20	2417.3	3923.7	4014.1	3836.3	2000	4000	72.70
50	2419.8	5861.6	5997.4	5737.9	2000	4000	109.99
Final	2424.9	5875.0	5976.3	5722.0	2000	4000	118.95
Anneal	2419.0	5737.4	5881.5	5660.1	2000	4000	98.58

Lot size for statistics : 4 devices

RD 155 Date code 9518C



### Radiation Results for 2N6849



Dose (kRad)	Control 216 (ohms)	Mean (ohms)	Max (ohms)	Min (ohms)	Upper Limit (ohms)	Lower Limit (ohms)	Std.Dev.
Initial	0.223	0.222	0.229	0.216	0.300	0	0.01
0	0.223	0.222	0.227	0.219	0.300	0	0.00
5	0.219	0.221	0.227	0.217	0.300	0	0.00
10	0.220	0.225	0.235	0.218	0.300	0	0.01
15	0.220	0.226	0.235	0.221	0.300	0	0.01
20	0.220	0.231	0.237	0.224	0.300	0	0.01
50	0.215	0.291	0.309	0.269	0.300	0	0.02
Final	0.216	0.302	0.326	0.275	0.300	0	0.02
Anneal	0.225	0.296	0.312	0.272	0.300	0	0.02

Lot size for statistics : 4 devices

RD 155 Date code 9518C

SZ-TESTSYSTEME Family Testadaptor TA07F 07.06.91 / 10:56:59

2N6849 P0-PL-IG6-PL-0003 ISS.3 / V1.0 SMR 24/10/95

Socket adapter type: SA07.03

Fets per device : 1 ( P )

Pin assignment : 1

```
=====
 1. -V(BR)DSS          100.0 ... 700.0  V
Switch : off          | Pin assignment : 1
-ID          0.250 mA |
-----
 2. -VGS              2000.0 ... 4000.0  mV
Switch : off          | Pin assignment : 1
-ID          0.250 mA |
-----
 3. -IGSS (FWD)       ( 0.0 )... 100.0  nA
Switch : off          | Pin assignment : 1
-VGS          20.000 V | Add. time      0 ms |
-----
 4. -IDSS             ( 0 )... 250    uA
Switch : off          | Pin assignment : 1
-VDS          100.000 V | Add. time      0 ms |
-----
 5. RDS on            ( 0.000)... 0.300  Ohm
Switch : off          | Pin assignment : 1
-VGS          10.000 V | -ID           4100.000 mA |
-----
```

=====  
Results file : RIR\_62743\_EMS @\_IGG from: ~~21.02.70~~ / 02:02:50  
Operator : Steve Young.  
Part number : 2N6849.  
Lot number : RIR 62743.  
Order number : Date Code 9518C.  
Vendor : IR.  
: Control = S/No 216 : RAD Samples S/No's 220,228,250,256.  
: TEST #3 INITIAL EMS @ IGG.  
: 2N6849 PO-PL-IGG-PL-0003 ISS.3 / V1.0 SMR 24/10/95  
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Test steps

1. -V(BR)DSS	100.0	...	700.0	V
2. -VGS	2000.0	...	4000.0	mV
3. -IGSS (FWD)	( 0.0 )	...	100.0	nA
4. -IDSS	( 0 )	...	250	uA
5. RDS on	( 0.000 )	...	0.300	Ohm

-----

	216	220	228	250	256
1.1 [ V]	126.9	114.4	119.3	124.1	124.4
2.1 [mV]	2415.6	2473.8	2588.8	2548.1	2513.4
3.1 [nA]	1.4	1.3	1.3	1.3	1.4
4.1 [uA]	0	0	0	0	0
5.1 [Ohm]	0.223	0.216	0.221	0.229	0.221

```

=====
Results file   : RIR_62743_EMS@_ERA   from: 21.02.70 / 20:01:44
Operator      : Steve Young.
Part number   : 2N6849.
Lot number    : RIR 62743.
Order number  : Date Code 9518C.
Vendor       : IR.
               : Control = S/No 216 : RAD Samples S/No's 220,228,250,256.
               : TEST #4 INITIAL EMS @ ERA.
               : 2N6849 PO-PL-IGG-PL-0003 ISS.3 / V1.0 SMR 24/10/95
=====

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Test steps

1. -V(BR)DSS	100.0	...	700.0	V
2. -VGS	2000.0	...	4000.0	mV
3. -IGSS (FWD)	( 0.0 )	...	100.0	nA
4. -IDSS	( 0 )	...	250	uA
5. RDS on	( 0.000 )	...	0.300	Ohm

	216	220	228	250	256
1.1 [ V]	127.1	114.5	119.3	124.0	124.4
2.1 [mV]	2417.2	2473.9	2588.3	2548.9	2513.9
3.1 [nA]	1.5	1.4	1.4	1.4	1.4
4.1 [uA]	0	0	0	0	0
5.1 [Ohm]	0.223	0.219	0.224	0.227	0.219



SZ-TESTSYSTEME Statistics 03 Vers. 2.15 for TA07F  
RIR\_62743\_EMS @\_IGG / V1.0 SMR 24/10/95

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=====
Results file   : RIR_62743_EMS @_5_KRAD   from: 21.02.70 / 20:23:49
Operator      : Steve Young.
Part number   : 2N6849.
Lot number    : RIR 62743.
Order number  : Date Code 9518C.
Vendor       : IR.
              : Control = S/No 216 : RAD Samples S/No's 220,228,250,256.
              : TEST #7(i) EMS @ 5 K RAD.
              : 2N6849 PO-PL-IGG-PL-0003 ISS.3 / V1.0 SMR 24/10/95
=====

```

Test steps

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-----
1. -V(BR)DSS           100.0   ...   700.0   V
2. -VGS                2000.0  ...   4000.0  mV
3. -IGSS (FWD)         (  0.0  )...   100.0   nA
4. -IDSS                (  0    )...   250     uA
5. RDS on              ( 0.000 )...   0.300  Ohm
-----

```

	216	220	228	250	256
1.1 [ V]	126.9	114.5	119.1	124.0	123.9
2.1 [mV]	2412.6	2805.8	2937.1	2884.3	2869.9
3.1 [nA]	1.2	1.2	1.2	1.2	1.2
4.1 [uA]	0	1	1	1	0
5.1 [Ohm]	0.219	0.218	0.222	0.227	0.217

=====  
Results file : RIR\_62743\_EMS @\_10\_KRAD from: 21.02.70 / 20:42:32  
Operator : Steve Young.  
Part number : 2N6849.  
Lot number : RIR 62743.  
Order number : Date Code 9518C.  
Vendor : IR.  
: Control = S/No 216 : RAD Samples S/No's 220,228,250,256.  
: TEST #7(ii) EMS @ 10 K RAD.  
: 2N6849 PO-PL-IG6-PL-0003 ISS.3 / V1.0 SMR 24/10/95  
-----

Test steps

1. -V(BR)DSS	100.0	...	700.0	V
2. -VGS	2000.0	...	4000.0	mV
3. -IGSS (FWD)	( 0.0 )	...	100.0	nA
4. -IDSS	( 0 )	...	250	uA
5. RDS on	( 0.000 )	...	0.300	Ohm

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	216	220	228	250	256
1.1 [ V]	127.1	114.2	119.0	123.9	124.0
2.1 [mV]	2411.8	3158.5	3301.1	3228.3	3226.6
3.1 [nA]	1.3	1.3	1.3	1.3	1.3
4.1 [uA]	0	1	2	2	1
5.1 [Ohm]	0.220	0.218	0.222	0.235	0.223

SZ-TESTSYSTEME Statistics 03 Vers. 2.15 for TA07F  
RIR\_62743\_EMS\_@\_IG6 / V1.0 SMR 24/10/95

=====  
Results file : RIR\_62743\_EMS\_@\_15\_KRAD from: 21.02.70 / 21:12:43  
Operator : Steve Young.  
Part number : 2N6849.  
Lot number : RIR 62743.  
Order number : Date Code 9518C.  
Vendor : IR.  
: Control = S/No 216 : RAD Samples S/No's 220,228,250,256.  
: TEST #7(iii) EMS @ 15 K RAD.  
: 2N6849 PO-PL-IG6-PL-0003 ISS.3 / V1.0 SMR 24/10/95  
-----

Test steps

1. -V(BR)DSS	100.0	...	700.0	V
2. -VGS	2000.0	...	4000.0	mV
3. -IGSS (FWD)	( 0.0 )	...	100.0	nA
4. -IDSS	( 0 )	...	250	uA
5. RDS on	( 0.000 )	...	0.300	Ohm

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	216	220	228	250	256
1.1 [ V]	127.1	114.0	118.9	123.9	123.9
2.1 [mV]	2410.8	3498.9	3656.3	3574.3	3578.3
3.1 [nA]	1.4	1.4	1.4	1.4	1.4
4.1 [uA]	0	2	3	3	2
5.1 [Ohm]	0.220	0.221	0.225	0.235	0.222

=====  
Results file : RIR\_62743\_EMS@\_20\_KRAD from: 21.02.70 / 21:43:37  
Operator : Steve Young.  
Part number : 2N6849.  
Lot number : RIR 62743.  
Order number : Date Code 9518C.  
Vendor : IR.  
: Control = S/No 216 : RAD Samples S/No's 220,228,250,256.  
: TEST #7(iv) EMS @ 20 K RAD.  
: 2N6849 PO-PL-I66-PL-0003 ISS.3 / V1.0 SMR 24/10/95  
=====

Test steps

-----  
1. -V(BR)DSS 100.0 ... 700.0 V  
2. -VGS 2000.0 ... 4000.0 mV  
3. -IGSS (FWD) ( 0.0 )... 100.0 nA  
4. -IDSS ( 0 )... 250 uA  
5. RDS on ( 0.000 )... 0.300 Ohm  
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	216	220	228	250	256
1.1 [ V ]	126.8	114.2	118.8	123.7	123.7
2.1 [mV]	2417.3	3836.3	4014.1	3917.6	3926.6
3.1 [nA]	1.4	1.3	1.3	1.3	1.3
4.1 [uA]	0	3	3	4	3
5.1 [Ohm]	0.220	0.228	0.234	0.237	0.224



SZ-TESTSYSTEME Statistics 03 Vers. 2.15 for TA07F  
RIR\_62743\_EMS @\_IG6 / V1.0 SMR 24/10/95

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=====
Results file   : RIR_62743_EMS @_50_KRAD   from: 21.02.70 / 22:15:03
Operator      : Steve Young.
Part number   : 2N6849.
Lot number    : RIR 62743.
Order number  : Date Code 9518C.
Vendor       : IR.
              : Control = S/No 216 : RAD Samples S/No's 220,228,250,256.
              : TEST #7(v) EMS @ 50 K RAD.
              : 2N6849 PO-PL-IG6-PL-0003 ISS.3 / V1.0 SMR 24/10/95
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Test steps

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-----
1. -V(BR)DSS           100.0   ...   700.0   V
2. -VGS                2000.0   ...  4000.0  mV
3. -IGSS (FWD)        (  0.0  )...   100.0  nA
4. -IDSS              (  0  )...    250  uA
5. RDS on             ( 0.000 )...    0.300 Ohm
-----

```

	216	220	228	250	256
1.1 [ V]	126.6	113.9	119.0	123.6	123.8
2.1 [mV]	2419.8	5737.9 F	5997.4 F	5820.4 F	5890.8 F
3.1 [nA]	1.4	1.3	1.3	1.3	1.3
4.1 [uA]	0	7	8	9	8
5.1 [Ohm]	0.215	0.269	0.304F	0.309F	0.283

SZ-TESTSYSTEME Statistics 03 Vers. 2.15 for TA07F  
RIR62743\_2N6849\_24HR\_ANNEAL\_RAD / V1.0 SMR 24/10/95

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=====
Results file   : RIR62743_2N6849_24HR_ANNEAL_RAD   from: 06.01.96 / 09:55:59
Operator      : I ROBINS
Part number   : 2N6849
Lot number    : RIR 62743
Order number  : D/C 9518C
Vendor        : IR
               : SERIAL NUMBERS 220,228,250,256 CONTROL SERIAL NUMBER=216
               : TEST ROOM TEMP POST RAD 24 HR ANNEAL
               : 2N6849 PO-PL-I66-PL-0003 ISS.3 / V1.0 SMR 24/10/95
=====

```

Test steps

```

=====
1. -V(BR)DSS           100.0   ...   700.0   V
2. -VGS                2000.0  ...  4000.0  mV
3. -IGSS (FWD)        (  0.0  )...  100.0   nA
4. -IDSS               (  0    )...   250    uA
5. RDS on              ( 0.000 )...   0.300  Ohm
=====

```

	216	220	228	250	256	216
1.1 [ V ]	126.6	114.1	119.2	124.1	124.2	126.8
2.1 [mV]	2424.9	5722.0 F	5961.8 F	5796.3 F	5839.8 F	2421.6
3.1 [nA]	1.3	1.3	1.3	1.3	1.4	1.4
4.1 [uA]	0	7	8	10	8	0
5.1 [Ohm]	0.216	0.275	0.314F	0.326F	0.291	0.215

SZ-TESTSYSTEME Statistics 03 Vers. 2.15 for TA07F  
RIR62743\_POST\_RAD\_FINAL\_EMS / V1.0 SMR 24/10/95

=====  
Results file : RIR62743\_POST\_RAD\_FINAL\_EMS from: 13.01.96 / 08:56:36  
Operator : I ROBINS  
Part number : 2N6849  
Lot number : RIR 62743  
Order number : D/C 9518C  
Vendor : IR  
: SERIAL NUMBERS 220,228,250,256 CONTROL SERIAL NUMBER=216  
: TEST POST RAD ROOM TEMP FINAL EMS TA07B SA07.03  
: 2N6849 PO-PL-IG6-PL-0003 ISS3 / V1.0 SMR 24/10/95  
=====

-----  
Test steps

1. -V(BR)DSS	100.0	...	700.0	V
2. -VGS	2000.0	...	4000.0	mV
3. -IGSS (FWD)	( 0.0 )	...	100.0	nA
4. -IDSS	( 0 )	...	250	uA
5. RDS on	( 0.000 )	...	0.300	Ohm

-----

	216	220	228	250	256	216
1.1 [ V]	126.8	114.5	119.2	124.2	124.6	126.8
2.1 [mV]	2419.0	5660.1 F	5881.5 F	5713.1 F	5694.7 F	2417.3
3.1 [nA]	1.4	1.3	1.4	1.4	1.4	1.4
4.1 [uA]	0	7	8	9	8	0
5.1 [Ohm]	0.225	0.272	0.310F	0.312F	0.290	0.216