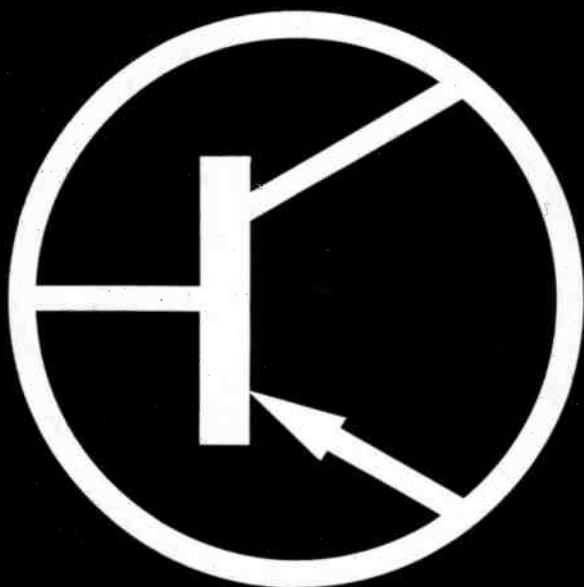


First Book of Transistor Equivalents and Substitutes

B. B. BABANI



**FIRST BOOK OF
TRANSISTOR EQUIVALENTS
AND SUBSTITUTES**

by

B. B. BABANI

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INTRODUCTION

Up to now, to the best knowledge of the author, there has been no book available at a reasonable price to assist Service Engineers, Home Constructors, Designers and Amateurs in determining the best available transistors to replace a given type.

It will be realised by all users of transistors, that one cannot guarantee absolute equivalents as in the case of many electronic valves. Therefore, the only way to handle the replacement problem, is by careful consideration being given to every characteristic of both the required transistor and its possible alternatives. This has been done in the preparation of this book.

It should be carefully noted however, that in many cases the possible alternatives may be different in appearance or size and when replacing, carefully check if space is available to take the replacement.

It is also recommended that where high frequency transistor circuitry is involved and when replacements are being used, slight re-alignment may be necessary. This is also advised even if the replacement transistor is of identical type number to the one that is being replaced. In extreme cases, neutralisation may have to be provided even when unnecessary in the original circuit. This is due in the main, to comparatively large ranges of inter-electrode capacitances normally found in transistors.

As this book contains many thousands of transistors, it has been necessary to use some form of abbreviation in listing the possible replacements for a required transistor type:

For example, in the 1st page of the book, if one looks at the alternatives for type 2N37, the replacement types shown read as follows:

OC70-303-602, NKT272, 2SB220, AC122-124-128-
132-152-163, 2N65-104-105-108.

This means that for the type 2N37, one can use as an alternative the OC70 or OC303, or OC602, or NKT272, or

2SB220, or AC122, or AC124, or AC128, or AC132, or AC152, or AC163, or 2N65, or 2N104, or 2N105, or 2N108 respectively, there being no particular preference indicated in the order that the replacements are listed.

It should be noted that in the first column, the listing is shown in numerical/alphabetical order.

Included in this book are transistors of British, German, Dutch, U.S.A., Japanese and European manufacture. Thus, virtually all known types that have possible replacements have been included.

The author has taken every care possible in the compilation of the data in this book, but neither the author nor the publishers can accept any responsibility for any errors that may be present.

Bernard B. Babani

London, January 1971.

2N24A OC77-309, 2SB89, ACY24, ACZ10.
2N27 AC124-125-128-152.
2N28 AC122-125-151.
2N34 OC71-72-304-604, NKT210, 2SB101, AC122-124-128-132-152-163, 2N43-44-59-60-61.
2N34A NKT213, AC125-128-132, 2N34-38-45-104-105-109-111-112, OC72.
2N35 CV5781, OC74-140-318, 2SD11, AC105-117-127-130-132-153, 2N213-214-783-834.
2N36 OC71-72-304-604, NKT272, 2SB101, AC122-124-128-132-152-163, 2N37-38-63-65.
2N37 OC70-303-602, NKT272, 2SB220, AC122-124-128-132-152-163, 2N65-104-105-108.
2N38 OC70-303-602, NKT272, 2SB220, AC122-124-125-128-152-163, 2N45-104-111-112.
2N38A OC70-303-602, 2SB220, AC122-124-125-128-132-152-163.
2N39 OC70-303-602, 2SB220, AC122-125-163.
2N40 OC70-303-602, 2SB220, AC122-125-151-163.
2N41 OC58-71-304-604, 2SB219, AC122-163.
2N42 OC70-303-602, 2SB220, AC122-163.
2N43 OC72-77-308-604S, 2SB225, AC117-124-125-128-152-153, ACZ10, ASY77-80.
2N43A OC72-77-308-604S, 2SB225, AC117-125-128-153, ASY80, BCY12.
2N44 OC76-307-602S, 2SB224, AC124-125-128-131-152, ACZ10, ASY77, BSY12.
2N44A OC72-308, NKT238, 2SB33, AC117-124-128-152-153.
2N45 OC76-307-602S, NKT210, 2SB224, AC124-125-126-128-131-132-152, ACZ10.
2N46 OC58-71-304-604, 2SB101, AC122-123-125-151-163.
2N47 OC58-70-303-602, 2SB32, AC122-123-151-163.
2N48 OC58-70-303-602, 2SB32, AC122-123-125-151-163.
2N49 OC58-70-303-602, NKT245, 2SB32, AC122-123-125-151-163.
2N51 OC72-308-604S, 2SB222, AC117-128-153.
2N54 OC76-307-602S, 2SB224, AC124-128-131-132-152.
2N55 OC76-307-602S, 2SB224, AC124-128-131-132-152.
2N56 OC76-307-602S, 2SB224, AC124-128-131-132-152.
2N57 ACY33.
2N59 OC72-308-604S, 2SB222, AC117-124-128-152-153, ACY33.
2N59C OC70-303-602, NKT237, 2SB32, AC22-163, BCY12.
2N60 OC72-318-604S, NKT241, 2SB222, AC117-128-153, ACY33.
2N60A OC74-318, NKT241, 2SA219, AC105-117-128-153, ACY33.
2N61A OC76-307-602S, NKT240, 2SB224, AC131-152, ACY33.
2N61B OC70-303-602, NKT239, 2SB220, AC122-163, ACY33.
2N62 OC76-307-602S, 2SB224, AC124-128-131-132-152, ACY33.
2N63 OC70-303-602, NKT225, 2N217-322, 2SB220, AC122-124-128-132-152-163.
2N64 OC71-304-604, NKT262, 2N217-322, HJ15, AC122-124-128-132-152-163.

2N65 OC71-304-604, NKT223, 2N193-323-506, HJ15,
 AC122-128-163.
 2N66 OC30, AD139.
 2N68 OC30, OD603, 2N101-156, 2SB240, AC139.
 2N69 AC151, ACY23, ACZ10.
 2N71 OC30, 2SB240, AC151, ACY23, ACZ10.
 2N72 AC151, ACY23, ACZ10.
 2N73 2N1614, AC151, ACY23, ACZ10.
 2N74 2N1614, AC151, ACY23, ACZ10.
 2N75 2N1614, AC151, ACZ10.
 2N76 OC70-303-602, 2N322, 2SB220, AC122-125-151-163.
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 AC122-126-163.
 2N78 OC44-140-400-613, CV5620, NKT736, HJ23D, 2N439-
 445, AF101, ASY74-75.
 2N79 OC71-304-604, 2N206-321-331-403, HJ15, AC122-125-
 151-163.
 2N80 OC71-304-604, 2N192-508, HJ15, AC125-163.
 2N81 OC70-303-602, 2N189-1098, 2SB220, AC122-163?
 2N82 OC70-303-602, 2N1098, 2SB220, AC122-163.
 2N83 OC30, OD603, 2SB240.
 2N84 OC30, OD603, 2SB240.
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 2N87 2N34-109-403, AC124-128-132-152.
 2N88 OC58, 2N34-105-402.
 2N89 OC58, 2N105-217-402.
 2N90 OC58, 2N105-217-402.
 2N93 OC74-318, 2SA219, AC105-117-122-125-151-153.
 2N94 OC74-140-318, NKT773, 2N138-186-291-1009,
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 2N96 OC70-303-602, 2N190-206-322-331-403, 2SB220,
 AC122-125-151-163.
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 337-338-745-746-789-790.
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 2N102 2N142-144, AD161.
 2N103 2N29-35-98-99-117-118-119-120-160-170.
 2N104 OC72-308-604S, NKT214, 2N34-109-188-215-217-402-
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 153, ASY80.
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 465-565, 2SB220, AC122-125-163, ASY80.
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 2N107 OC70-303-602, NKT272, 2N34-63-64-217-218-402-
 464. 2SB170, AC122-125-162.
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 2S37, AC106-128-132-153-177.

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 2N111A NKT135, 2N218, AF127, ASY26, OC45.
 2N112 OC44-45-390-612, NKT135, 2N118-135-145-170-396-
 427-450, 2SA206, AF101-126, ASY26.
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 147-293, AF101-126.
 2N114 OC44, 2N140-1309, AF126.
 2N115 OC16-26-304-604, 2N175-270, 2SB221, AC122-163,
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 2N116 OC57-66-331-622, 2N133-175, 2SB39.
 2N117 2N332, AF127.
 2N118 2N119, BDY10.
 2N119 2N118, BDY10.
 2N120 2N118, BDY10.
 2N123 OC44-400-613, 2N168-404-426, HJ23D, AF101-127,
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 2N124 OC139, NKT773, 2N293-445, ASY73.
 2N125 OC140, NKT734, 2N126-167-446-585, ASY73.
 2N126 OC140, NKT734, 2N125-167-439-585, ASY74.
 2N127 2N167-440.
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 2N132A OC66-71-304-604, NKT219, 2N130-131-133-229-233-
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 2N133 OC72-308, 2N175, NKT224, AC117-128-153.
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 2N135 NKT135, OC45-390, 2N139, AF101-127.
 2N136 OC45-390, NKT137, AF101-127, 2N110-111-112-113-
 114-136-271.
 2N137 OC44-400-612, NKT137, AF101-126, ASY27, 2N135-
 136-496-559-649-705-710-711.
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 2N158 CV5622, OC26-30, OD603, AD140-149.
 2N158A ASZ16
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 2N160A 2N783-834-1060-1962-1964.
 2N161 2N117-118-119-120-332-333.
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 2N167A NKT734, ASZ16.
 2N168 OC44-400, AF101, ASY73, HJ23D.
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 2N174A CV9767, 2N1100-1358-1412.
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 2N180 OC72-308, NKT213, 2S32, AC117-132-153, 2N110-181-217-518-923-924-925-944-945.
 2N181 OC318, NKT213, 2SB222, AC117-124-128-132-152-153, 2N270-943-945-1174-1230.
 2N182 NKT713, ASY73-74, 2N29-183-184-377-385.
 2N183 ASY74, 2N29-182-184-377-385.
 2N184 NKT736, ASY75, 2N29-182-183-377-381, OC141.
 2N185 OC72-308-604S, NKT274, 2N188-270-320-360-362, 2SB221, AC117-124-128-132-152.
 2N186 NKT225, 2N61-186-187-217, AC124-128-132-152.
 2N187 OC72-76-308-604S, NKT224, 2N61-109-188-320-382-422-462-465-633, 2SB220, AC117-128-153.
 2N188 OC72-308, NKT223, 2SB220, AC117-128-153, 2N43-44-59-60-61-109.
 2N188A OC318, NKT224, 2N270, 2SB222, AC117-124-125-128-153.
 2N189 OC70-303-602, NKT225, 2SA219, 2N34-104-109-190-266-381-402-403-408-464-465, AC122-125-128-162.
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 2N192 OC71-304-604, NKT223, 2N207-270, 2SB221, AC122-126-163.
 2N193 OC45-139-141-390-612, NKT734, 2N194-211-253-254-292-313, 2SA31, AF101, ASY28.

2N194 OC45-139-141-390-612, NKT773, 2N193-211-253-254-292-313, 2SA31, AF101, ASY73.
 2N195 2N217-403, AC132:
 2N196 OC71-304-604, 2N197-217-265-403, 2SB221, AC122-128-132-163.
 2N197 OC72-304-604, 2N196-265-403, 2SB221, AC122-128-132-163.
 2N198 OC70-303-602, 2N199-217-403, 2SB170, AC122-128-132-162.
 2N199 OC70-303-602, 2N109-198-403, 2SB170, AC122-128-132-162.
 2N200 2N331, AC125.
 2N204 2N331, AC125.
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 2N206 OC71-304-604, NKT214, 2N34-43-60-191-220-331, 2S39, AC122-125-163.
 2N207 OC58-71-304, NKT264, 2SB221, AC122-163, ASY26, 2N45-65-105-109-111-112-113.
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 2N213 OC76-307-602S, 2N214-228-279-632-1144-1145, 2SB37, AC131-152, ASY28.
 2N213A OC76-307-602S, 2N214-228-279-632-1144-1145. 2SB37, AC131-152, ASY28.
 2N214 OC76-307, 2N213-228-279-632-1059, 2SB37, AC127-128-131-152.
 2N215 OC72-308-604S, NKT214, HJ15, 2N237, AC117-126-153, ASY80.
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 2N217 OC318, NKT212, HJ17D, AC106-128-132, 2N109-270-381-382-383-413-414.
 2N218 OC45-390-612, NKT11, HJ22D, AF101-181, 2N139-1118, 2SA14-15-279-280-301-310.
 2N219 OC44-410-613, NKT11, HJ23D, AF101, ASZ20, 2N140-409-410-411-412, 2SA13-16-17-151-152.
 2N220 OC71-304, NKT216, AC107-122-126-163, 2N65-123-175-450-496-535-536.
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 2N226 OC318, NKT214, 2N235-239-241-249-250-270-321-526-1192-1375, 2SB226, AC106-117-128-153.
 2N227 2N225-270, 2SB226.
 2N228 OC76-307, 2SB37, AC131-152, ASY28, 2N35-213-567-587-1170.
 2N229 NKT773, 2SB32, AC130, 2N35-94-167-193-194-211-212-213.
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2N232	NKT11, 2N218, AF126, OC56-57-58-59.
2N233	OC71-304, NKT773, AC122-130-163, 2N35-94-167-193-194-211-212-213.
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2N235	OC318, 2N301, 2SB222, AC117-128-153, AD149.
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2N236	OC26-318, 2N234-235, 2SB250, AC106-117-128-153, AD149.
2N237	OC58-72-308, NKT210, HJ15, 2N220, AC117-153.
2N238	OC72-308-604S, NKT271, 2N217-565-566, 2SB101, AC117-128-132-153.
2N239	OC318, 2SB226, AC127-128-153.
2N240	OC70-303-602, 2SB32, AC122-125-163, 2N77-105-108-139-140-218-219-409-582.
2N241	OC72-308-604S, NKT229, 2N217-281, 2SB221, AC117-128-153.
2N241A	OC318, NKT224, 2N270, 2SB226, AC117-128-132-153.
2N242	OC28-74-318, 2N301-419-1014-1136-1137-1293-1320-1501, 2SB248, AC105-117-153, AD149, ADZ11.
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2N256	OC26-30, OD603, 2N301, NKT452, 2SB107, AD149.
2N257	OC26-30, OD603, 2N155-301, NKT402, AD149-150, 2SB41-107.
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2N261	ASY77.
2N262	AC132.
2N265	OC71-304, NKT216, 2N408, 2SB221, AC122-132-163.
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2N269	NKT135, ASY26-27, OC44, 2N111-112-113-114-270-271-331.

2N270 OC71-80-318, NKT224, HJ34, AC106-117-128-153,
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 2N271 OC44, NKT137, 2N111-112-113-114-381-382-383-404-
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 2N272 OC72-308-604S, NKT229, 2N109-273-280-631, 2SB33,
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 2N273 OC72-308, NKT225, 2N109, 2SB33, AC117-132-153.
 2N274 CV5624, AF126, AFZ10, ASZ20, 2N370-1432.
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 2N297 CV9250, OC30, OD603, NKT402, 2SB252, ASZ15,
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2N3704	CV10683.
2N3707	BC107.
2N3708	BC107.
2N3709	BC107.
2N3710	BC107.
2N3712	CV10946.
2N3730	AU103.
2N3731	CV10267, AU103.
2N3732	AU103.
2N3741	CV11056.
2N3773	CV10846.
2N3791	CV11149.
2N3819	CV10684.
2N3823	CV10832-11004.
2N3824	CV9606.
2N3825	BC107.

2N3866	CV10046.
2N3879	CV9936.
2N3904	CV11041.
2N3906	CV9588.
2N3953	CV10575.
2N3993	CV9605.
2N3998	CV10787.
2N4026	BD138.
2N4036	CV10548.
2N4037	CV11257.
2N4077	AD161.
2N4078	AD162.
2N4126	CV11179.
2N4286	BC107.
2N4348	CV11241.
2N4393	CV10766.
2N4399	CV10930.
2N4401	CV11143.
2N4403	CV11144.
2N4416	CV10953.
2N4433	BF115.
2N4434	BF184.
2N4435	BF185.
2N4856	CV11142:
2N4860	CV11009.
2N5416	CV11010.
2S12	OC44-74-318, 2N94-410-411, AC105-117-124-128-153.
2S13	OC44-410-613, 2N139-147-409, AF101-117-127.
2S14	OC71-304-604, 2N34-109-405-406, AC122-125-163.
2S15	OC72-308-604S, 2N43-408, AC117-124-128-153.
2S18	OC30, OD603, 2N101, AD149.
2S24	AC128-132, OC74, 2N188-407-408.
2S30	OC44-410-613, 2N411-412, AF101-117-126.
2S31	OC45-390-612, 2N135-409-410-412, AF101-116-127.
2S32	OC72-308-604S, 2N406-611, AC117-132-153.
2S34	OC72-308-604S, 2N270-568, AC117-124-128-153.
2S35	OC45-390-612, 2N111, AF101-116-127.
2S36	OC45, 2N139-218.
2S37	OC72-308-604S, 2N106, AC117-132-153.
2S38	AC128, OC74, 2N270.
2S39	OC71-304-604, 2N115, AC122-125-163.
2S40	ASY27, OC47, 2N269.
2S41	OC29, 2N269, AD150, AF125-134, AUZ11.
2S42	OC28, OD605, 2N301-387, AD131, ASZ15.
2S43	2N247-640, AF105-116-125-126-132-134-137.
2S44	OC72-308-604S, 2N188-406-407-408, AC117-128-153.
2S45	OC45-390, 2N136-409-410, AF101-116-127.
2S49	2N410, AF127.
2S51	OC44.
2S52	OC44-71-72-410-613. 2N137-219-410-411-412, AC124-128-153, AF101-117-126.
2S53	OC45, 2N137-411-412-450.
2S54	2N407-408-410, AC132.

2S56 OC72-74-308-604S, 2N109-133-270-407-408,
AC117-124-128-153.
2S60 2N137-411-412-450.
2S62 OC44.
2S63 OC44.
2S75 OC71, 2N109-191-215.
2S91 OC170-614, 2N270-370, AC124-128-153, AF115-
131-136.
2S109 OC170-614, 2N370, AF115-125-131-134-136.
2S110 OC170, 2N371-372.
2S112 OC170-614, 2N372, AF115-125-131.
2S140 OC44.
2S141 OC170, 2N373.
2S143 2N373-641, AF105-116-125-126-132-134-137.
2S144 OC170-614, 2N1108, AF115-126-127-131-134-136.
2S145 2N544.
2S146 OC44-410-613, 2N219, AF101-117-126.
2S148 AF126.
2S149 OC44.
2S159 AC125, OC71-72, 2N405-406.
2S163 AC132, OC74, 2N188-407-408.
2S179 AC128.
2S301 BCY32, ACZ10, 2N1474-1475-2006-2007.
2S302 BCY33, BCZ10, 2N1174-1219-1220-1373-1375-
1377-2002-2003.
2S303 BCY34, BCZ11, OC72, 2N43-44-110-186-187-188-
224-226.
2S304 BCZ10, 2N2001.
2S321 OC701-703, 2S305-325.
2S322 BCZ10, OC44-701-703, ACZ10, 2N935-936-937-2000.
2S323 BCZ11, OC80-443-467, 2N935-936-937-2000-2001.
2S433 AF124-125-126-127.
2SA12 OC45-390-612, 2N139-218-219-409-410-411-412-483,
AF101-116-127, 2SA14-15-279-310.
2SA13 OC46-390, 2N139-218-409-410, AF101-117-127,
2SA12-14-15-16.
2SA14 AF127, OC46, 2N139-218-1118, 2SA15-279-280-
301-310, 2SB74.
2SA15 OC44-410-613, 2N219-411-412, AF101-117-126,
2SA14-279-280-301-310, 2SB74.
2SA16 OC44-46, 2N139-218-409-410-411-412, 2SA12-13-
14-15.
2SA18 OC71, 2N104-109-111-114-130.
2SA23 OC45-390-612, 2N409, AF101-116-127.
2SA24 OC170-614, 2N370, AF115-124-131-134-136.
2SA25 AF124-134.
2SA30 OC44-410-613, 2N370-371-372-411-412, AF101-117-
126.
2SA31 OC45-390-612, 2N370-372, AF101-116-127.
2SA37 AF126-127-134, 2N535-536-799-800-807-808-809-810.
2SA38 AF117, 2N535-536-799-810.
2SA39 AF117, 2N535-799-808-810.
2SA40 2N367-404-495-525-582.
2SA41 AF117, 2N327-328-329-598-600-935-937-944.
2SA42 AF117, 2N381-382-383-518-650-651.
2SA43 OC45-390-612, 2N247, AF101-116-125.

2SA48 AF125-134.
 2SA49 OC44-410-613, 2N136-137-410-416-483, AF101-117-125-126-134.
 2SA50 2N269-311-404-518-583-1309, AF125-134.
 2SA51 OC44-410-613, 2N212-617, AF101-117-126-127-134.
 2SA52 OC44-72, 2N65-109-111-112-113-114-131.
 2SA53 OC45-390-612, 2N111-135-218-410-482, AF101-116-126-127-134.
 2SA57 OC170-614, 2N370-384, AF115-124-125-131-134-136.
 2SA58 OC170-614, 2N370-1110, AF115-124-125-131-134-136.
 2SA59 2N370-624, AF125-126-127-134.
 2SA60 AF124-125-126-127, 2N274-370-371-373-374-384-502-700-1118.
 2SA64 OC47, 2N123-367-369-582.
 2SA65 2N302, ASY27.
 2SA69 AF180-186, 2N537-643-644-645-649-741-1094-1195-1285.
 2SA70 OC170-614, 2N110, AF115-131-136.
 2SA71 AF124-134, AFZ10, 2N384-1118, 2SA279-280-301-310.
 2SA72 AF114-115-116-117, 2N274-370-371-373-374-384-502-700-1118.
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 2SA78 ASY75, 2N1495-2097-2100, 2SA311-312.
 2SA80 OC170-614, 2N371, AF115-124-131-136.
 2SA82 AF124-125, 2N274-370-371-372-373-384.
 2SA84 OC44, 2N274-374-384-1023-1066-1118-1180-1225.
 2SA86 AF125-134.
 2SA92 2N252-345-374, AF126.
 2SA93 AF124-125-126-127.
 2SA101 AF127, AFZ10, ASZ20, 2SA104-281.
 2SA102 AF126-134-181, ASZ20, AFZ10, 2SA281.
 2SA103 AF117, AFZ10, ASZ20, 2SA281.
 2SA104 AF118-125-134, AFZ10, ASZ20, 2SA102-281.
 2SA105 OC171-615, 2N299, AF114-124-130-135, 2N107-137-140-1428-1752.
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 2SA110 OC170-171, 2N59-60-61-63-65-104-110.
 2SA111 OC170-171, 2N110-111-112-113-271-367.
 2SA112 OC170-171, 2N59-60-61-63-65-104-110.
 2SA116 OC171-615, 2N384, AF114-124-130-134-136.
 2SA117 AF178, OC72, 2N45-111-112-237-271.
 2SA118 AF178, OC72, 2N45-111-112-114-237-271.
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 2SA125 AF178, 2SA153-154-155-156-157-159-160-213-214-215.
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2SA134 AF178; 2N370-371-372-384-1432, 2SA80-81-82-83.
2SA135 AF178, 2N370-371-372-384-1432, 2SA80-81-82-83.
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2SA143 OC44-410-613, 2N137, AF101-117-126.
2SA144 OC170-171, 2N65-111-112-113-114-270-271.
2SA145 OC45-390-612, 2N579, AF101-116-124.
2SA147 AF127.
2SA148 AF115.
2SA152 AF126, 2SA15-151.
2SA153 AF124, 2N499-502-588-1158-1727-1742-1744.
2SA154 AF105-116-126-132-137, 2N310-499-502-588-1158-1728-1744.

2SA155 AF117, 2N499-502-588-1158-1727-1742.
2SA156 OC170-614, 2N384, AF115-124-125-131-134-136.
2SA157 AF124, 2N499-502-588-1158-1728-1744.
2SA159 OC44-410-613, 2N123, AF101-117-129-178.
2SA161 AF102, OC58, 2N105-108-111-112-114-135-136.
2SA167 OC45-390-612, 2N410, AF101-116-127.
2SA175 2N299-384, AF124-134.
2SA180 OC44-410-613, 2N219, AF101-117-127,
2SA181 OC45-390-612, 2N427, AF101-116-127.
2SA183 OC44-410-613, 2N78, AF101-117-127.
2SA197 AF127.
2SA201 OC45, 2N583, 2SA40-64-138-202-203.
2SA202 OC45, 2N583, 2SA40-64-138-201-203.
2SA203 OC45, 2N583, 2SA40-64-138-201-202.
2SA206 OC44-410-613, 2N252-1305, AF101-117.
2SA208 OC45-390-612, 2N146, AF101-116.
2SA213 AF124-134, 2N499-588-1787, 2SA153-154-155-156-157-159-160.

2SA215 2N247, AF105-116-126-132-137.
2SA216 AF127, 2N499-588-1787, 2SA153-154-155-156-157-159-160.

2SA219 AF126, 2N274-370-371-373-374-384-502-700-1118.
2SA220 AF114-115-116, 2N274-370-371-373-374-502-1118.
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2SA223 AF114-115-116, 2N274-370-371-373-502-1118.
2SA227 AF124-126-134, 2N274-370-371-502-700-1118.
2SA229 AF186, 2N274-370-371-373-384.
2SA230 AF178, 2N274-370-372-384.
2SA234 OC170-614, 2N346, AF115-118-131-136, AFZ12.
2SA235 OC171-615, 2N299, AF114-118-130-135, AFZ12.
2SA236 AF127, 2N274-370-371-373-374-384-502-700-1118.
2SA237 AF114-115-116, 2N274-502-700-1118.
2SA238 AF186, 2N945-1439-1440-1441-1442-1443-1921-2004-2005.

2SA240 AF178, 2N274-370-371-384.
2SA241 AF118, 2N274-370-371-372-373-374-384.
2SA242 AF178, 2N274-370-384.
2SA250 AF118.
2SA255 OC45-390-612, 2N211, AF101-116-127.
2SA256 OC170-614, 2N370, AF115-125-131-134-136.
2SA257 AF125-134, 2N274-370-371-372-373-384.

2SA258 AF114-115-116, 2N274-370-371-372-373-374-384.
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 2SA266 OC170-614, 2N374, AF115-124-131-136.
 2SA267 OC170-171, 2N274-370-371-372-373-374-384.
 2SA268 OC170-171, 2N274-370-371-372-373-374-384.
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 2SA271 OC170-171, 2N139-218-409-410-411-412, 2SA12-
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 2SA272 OC170-171, 2N139-218-409-410-411-412, 2SA12-
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 2SA286 AF125-134, 2N274-374-502-700.
 2SA287 AF114-115-116.
 2SA288 AF178-186.
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 2SA290 AF178-186, 2N370-384-1432, 2SA80-81-82-83.
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 2SA313 AF125-134, 2N370-384-700-1118-1432-1727.
 2SA314 AF114-115-116, 2N370-384-700-1118-1727.
 2SA315 AF124-125-126-127, 2N1158-1432-1727.
 2SA316 AF124-125-126-127, 2N370-372-700-1118-1727.
 2SA323 AF114-115-116, 2N502-700-1118.
 2SA324 AF114-115-116, 2N370-384-700.
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 2SA359 AF118, AC126
 2SA360 OC170-171.
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 2SA364 OC170-171.
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 2SA377 AF102-179.
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2SB12 OC70-71-304-602, 2N76, AC122-125-163.
 2SB13 OC72-308, 2N407, AC116-128-153.
 2SB14 OC76-307-602S, 2N467, AC131-152.
 2SB16 OC30, OD603, 2N155, AD148-149.
 2SB19 AD162, OC26-27, 2N176-178-250-251-257.
 2SB20 AD162, OC26-27, 2N176-178-250-251-257.
 2SB23 OC71, 2N583, 2SA33-40-64-138.
 2SB25 ASZ16, OC26, 2N268-297-301-392-457-458-553-
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 2SB26 AD149, OC26, 2N68-101-268-297-301-355-392-456.
 2SB27 AD149, OC26, 2N68-101-141-143-301-528-1172-
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 2SB28 AD149, OC26, 2N68-101-141-301-1611.
 2SB29 AD149, 2N68-101-141-143-301-528-1172-1611-
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 2SB30 AD149, 2N68-101-141-143-301-528-1172-1611.
 2SB31 AD149, 2N68-101-141-143-301-528-1172-1611-
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 2SB32 OC70-71-304-602, 2N109-405-559-680, AC122-125-
 132-152-163.
 2SB33 OC72-308, 2N109-407-559-680, AC116-126-153.
 2SB34 OC74-318, 2N226-270-1374-1381, AC105-117-124-
 128-153.
 2SB37 OC76-307-602S, 2N109-559-680, AC131-152.
 2SB38 AC128, 2N270-586-1374-1376-1379-1381-1999-2000-
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 2SB42 AD140, OC26, 2N268-297-301-553-1039-1331-1333.
 2SB44 AC128.
 2SB46 OC76-307-602S, 2N217, AC122-125-131-152.
 2SB47 ASY80, 2N45-109-111-112-113-114-217-271.
 2SB48 OC71-76-304-602, 2N322-406-1145, 2T311-312,
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 322, AC105-117-124-128-153.
 2SB52 NKT135, AC128, OC77, 2N43-44-1495-1496-2097-
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 2SB53 AC128, 2N381-382-383-414-524-525-526.
 2SB54 OC76-307-602S, NKT219, 2N215-408, AC122-125-
 131-152, ASY80.
 2SB55 NKT217, AC124-128-153, ASY77, 2SB218.
 2SB56 OC72-308, 2N109-242-680, NKT213, AC116-153.
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 2SB57 NKT223, AC128, OC72, 2N45-59-60-61.
 2SB58 AC128.
 2SB59 NKT213, AC126, OC72, 2N45-59-60-61.
 2SB60 NKT271, AC126, 2N407-408-643-644-645-649-1204-
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 2SB60A NKT271, 2N407-408-644-649-1495.

2SB61 NKT213, AC126, OC77, 2N43-44-45-110-281-327-367.
2SB62 NKT404, ASZ16, OC16, 2N141-143-301-1609-1610-1612, 2SB25-81-82.
2SB63 NKT451, AD139, OC16, 2N141-143-301-355-528-1172-1609-1611.
2SB64 OC76-307-602S, 2N331-422-467, AC131-152.
2SB65 NKT213, 2N381-382-383-394-396-413-414-416.
2SB66 OC71-304-602, 2N37-649, NKT213, AC122-125-163.
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2SB74 OC71-304-602, 2N105, AC122-125-163.
2SB75 NKT213, AC126, OC71-72, 2N109-217-270-381-383-413.
2SB75A NKT210.
2SB76 OC76-307-602S, 2N109-180-408, AC122-125-126-131-152.
2SB77 NKT213, AC128, OC81, 2N109-217-270-381-383-413.
2SB77A NKT210.
2SB78 OC72-308-604S, 2N43, AC117-122-125-126-152-153.
2SB79 OC74-318, 2N187, AC105-117-128-153.
2SB80 AD149, 2N68-101-257-268-297-301.
2SB83 OC28, OD605, 2N1295, AD131-149.
2SB84 AD149, 2N251-268-297-553-665-1011.
2SB86 OC30, OD603, 2N1291, AD148.
2SB87 OC28, OD605, 2N387, AD131.
2SB89 OC72-308, NKT224, 2N44-226-1381, AC116-124-128-153.
2SB89A NKT237.
2SB90 AC122-125-152, 2N404-535-536-582-584-799-800-807.
2SB91 AC132, 2N404-536-582-584-799-800-807-809-810.
2SB92 AC128.
2SB94 OC72-308-604S, NKT219, 2N44, AC117-122-125-152-153.
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2SB96 AC128.
2SB97 NKT216, AC107, 2N404-535-536-582-584-799-800-807.
2SB98 NKT229, AC128, OC77, 2N43-44-45-110-111-112-113.
2SB99 NKT229, AC128, OC77, 2N43-44-45-110-111-112-113.
2SB100 OC71-304-604, NKT216, AC122-125-163, 2N111-114-130-271-281.
2SB101 OC76-307-602S, NKT223, 2N43, AC131-152.
2SB102 OC74-318, 2N188, AC105-117-128-153.
2SB103 OC72-308-604S, 2N190, AC117-124-128-152-153.
2SB104 AC128, 2N381-382-383-414-524-525-526.
2SB105 AD149, AC153, OC80, 2SB108.
2SB106 OC30, OD603, AD148, 2N68-101-141-143-301-352-355-528-1172-1609.

2SB107 NKT303, AD149, OC26, 2N250-251-268-297-392-456-457.
2SB107A NKT404, 2N251-268-297-392-458.
2SB108 AD149.
2SB109 AD149, 2N141-143-301-528-1172-1609-1610-1611-1612.
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2SB111 NKT214, AC126, OC71-72, 2N45-111-112-113-114-271-281.
2SB112 NKT213, 2N79, OC70-71-304-602, AC122-126-163.
2SB113 NKT213, AC126, OC72, 2N45-111-112-113-114-271-281.
2SB114 NKT135, AC128, OC72, 2N45-111-112-113-114-271-281.
2SB115 NKT135, AC128, OC72, 2N45-111-112-113-114-271-281.
2SB116 NKT135, AC128, OC72, 2N45-111-112-113-114-271-281.
2SB117 NKT135, AC128, OC72, 2N45-111-112-113-114-271-281.
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2SB119 AD149, OC26, 2N257-268-297-553-665-1011.
2SB120 NKT213, AD149, 2N34-45-130-237-284-363-404-422-462.
2SB122 NKT401, ASZ18, OC26, 2N268-553-665-1011-1014-1531-1532-1533.
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2SB125 ASZ16, 2N273-442-443-511-512-513.
2SB126 NKT453, AD140-149, 2N250-251-297-456-457.
2SB127 AD140-149, NKT452, OC26, 2N250-251-457-553.
2SB128 NKT401, ASZ15, 2N458-574-1021-1022-1099-1100-1146.
2SB128A NKT420.
2SB129 NKT403, 2N458-1099-1146.
2SB130 OC30, OD603, NKT453, 2N155, AD148.
2SB131 NKT404, AD149, OC26, 2N257-268-297-301-553.
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ASY70 OC74-318, NKT281, 2N467, 2SB222, AC119, ASY80.
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BC109	CV10769-10806.
BC113	BC108.
BC114	BC109.
BC115	BC107.
BC118	BC107.
BC119	BFY51.
BC125	BC107.
BC134	BC107.
BC142	BFX84.
BC145	BF178.
BC150	BC109.
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BC168	BC109.
BC169	BC109.
BC170	BC109.
BC171	BC107.
BC172	BC109.
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BCY31	CV7344-8760-9247, BCY27-28.
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BD123	BD116.
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BDY11	CV10836.
BF108	BF109.
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BF110	BF109.
BF115	CV10243.
BF154	BC108.
BF184	CV10768.
BF185	CV10767.
BF216	BF115.
BFX21	CV9378.
BFX39	CV10821.
BFX48	CV11228.
BFX84	CV10540.
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BFY18	CV7491-9956, BC107.
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BFY52	CV7724-7727-10159-10471.
BFY57	CV10379.
BFY63	CV10681.
BFY64	CV9508.
BFY65	BFY80.
BFY66	2N918.
BFY72	CV10236.
BFY79	CV10520.
BFY90	CV10533.
BFZ10	BCZ11.

BLY11	CV9360.
BLY12	CV8863.
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BSX16	CV7628.
BSX19	CV10850.
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BSX23	CV9794.
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BSY26	CV7430-8916, BC108-109, BSY18-39.
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BSY34	BFY44.
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CV5416	OC84.
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CV5445	NKT203.
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CV5457	OC70.
CV5459	GET104.
CV5465	2N512A.
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CV5654	2N1152.
CV5655	2N1155.
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CV5806	2N1123.
CV5813	OC123.
CV5818	ASZ23.
CV5826	OC206.
CV5832	2N599.
CV5833	GET875.
CV5848	BCZ11.
CV5849	OC202.
CV5850	OC203.
CV5851	GET573.
CV5856	GET110.
CV5857	OC42.
CV5858	OC201.
CV5865	OC205.
CV5872	OC139.
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CV5902	GET104.
CV5913	2N1718.
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CV7080	GET571.
CV7081	GET572.
CV7082	GET573.
CV7083	OC29.
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CV7111	OC139.
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CV7117	OC203.
CV7151	BCY30.
CV7185	ASY66.
CV7188	OC205.
CV7326	GET111.
CV7327	GET102.
CV7335	AFZ12.
CV7338	ASZ21.
CV7341	BCY30.
CV7342	BCY30.
CV7343	BCY30.
CV7344	BCY30.
CV7345	BCY30.
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CV7347	OC202.
CV7348	2N1302.
CV7349	2N1304.
CV7350	2N1306.
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CV7361	BUY11.
CV7362	BSY25.
CV7363	BCZ11.
CV7365	GET15.

CV7376	ACY17.
CV7392	GET116.
CV7393	2N705.
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CV7404	2N1893.
CV7430	BSY26.
CV7431	BSY27.
CV7436	ACY18.
CV7437	ACY19.
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CV7440	2N1613.
CV7447	BFY19.
CV7448	ASY60.
CV7451	2N1479.
CV7452	2N1480.
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CV7460	AUY10.
CV7462	2N2411.
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CV7480	2N1511.
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CV7490	BFY17.
CV7491	BFY18.
CV7492	2N929.
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CV7605	2N916.
CV7606	ADZ11.
CV7607	ADZ12.
CV7608	ADY26.
CV7609	BFY19.
CV7610	BFY19.
CV7627	BSX15.
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CV7669	2N2904.
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CV7673	2N2906.
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CV7724	BFY52.
CV7725	BFY50.
CV7726	BFY51.
CV7727	BFY52.
CV7735	2N1711.
CV7736	BUY11.
CV7737	BSY25.
CV7738	2N2484.
CV7746	BCY39.
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CV7763	2N2218.
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CV7854	2N3055.
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CV7867	BDY52.
CV7868	BFX18.
CV7869	BFX19.
CV7870	BFX20.
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CV8007	OC702K.
CV8111	GET105.
CV8119	2N1302.
CV8126	NKT124.
CV8130	ACY18.
CV8150	GET880.
CV8252	OC42.
CV8259	ACY21.
CV8314	OC76.
CV8319	2N964.
CV8333	2N1492.
CV8341	OC24.
CV8342	OC28.
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CV8345	OC140.
CV8346	OC77.
CV8347	OC201.
CV8348	OC203.
CV8354	OC170.
CV8355	OC22.
CV8356	OC29.
CV8362	GET103.
CV8363	GET102.
CV8366	GET573.
CV8371	2N388.
CV8389	3N35.
CV8425	OC450.
CV8426	OC470.
CV8427	OC470.
CV8439	2N174.
CV8440	OC72.
CV8447	OC200.
CV8448	OC23.
CV8467	2N930.
CV8480	OC36.
CV8484	2N1721.
CV8501	NKT403.
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CV8529	ATZ10.
CV8541	2N1671A.
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CV8549	BCZ11.
CV8551	OC480K.
CV8558	GET111.
CV8559	NKT223.
CV8560	OC26.
CV8565	OC450K.
CV8568	2N916.
CV8593	2N1536.
CV8597	2N876.
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CV8600	2N396.
CV8601	2N719A.
CV8602	2N1990.
CV8603	2N2297.
CV8607	GET113.
CV8609	BFY16.
CV8615	BSY95A.
CV8616	BSY95A.
CV8618	GET885.
CV8635	AFZ11.
CV8638	AFZ12A.
CV8639	AFZ12B.
CV8640	NKT223A.
CV8641	GET890.
CV8642	GET887.
CV8661	2N1204.
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CV8668	2N513A.
CV8700	ASY64.
CV8710	2N1889.
CV8712	2N2398.
CV8718	BCY39.
CV8723	2N2498.
CV8724	OC83.
CV8725	2N257.
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CV8756	OC122.
CV8758	2N1720.
CV8760	BCY31.
CV8765	NKT213.
CV8767	2N2160.
CV8775	ADZ12.
CV8794	NKT226.
CV8800	2N1184B.
CV8801	NKT301.
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CV8807	OC700.
CV8810	NKT304.
CV8817	2N1692.
CV8819	2N1090.
CV8828	2N677B.
CV8830	OC440.
CV8831	OC460.
CV8832	2N499.
CV8837	NKT713.
CV8838	NKT32.
CV8843	2N1613.
CV8844	2N708.
CV8845	2N2223.
CV8846	2N869.
CV8847	2N995.
CV8848	2N2270.
CV8849	2N1038.
CV8850	2N1907.
CV8856	2N1131.
CV8857	2N2233.
CV8863	BLY12.
CV8864	2N645.
CV8874	2N2432.
CV8875	2N1410.
CV8876	2N1506.
CV8881	2N1716.
CV8883	2N2846.
CV8889	2N3055.
CV8890	2N3053.
CV8891	OC701.
CV8894	OC204.
CV8901	2N2739.
CV8902	2N3054.
CV8903	2N1016.

CV8909	2N708A.
CV8911	2N1700.
CV8915	BFY19.
CV8916	BSY26.
CV8923	2N444A.
CV8924	2N456A.
CV8925	2N457A.
CV8941	2N1483.
CV8950	2N1259.
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CV8968	2N1254.
CV8972	2N2800.
CV8979	2N1396.
CV8982	OC25.
CV9000	2N386.
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CV9008	2N1907.
CV9017	2N1701.
CV9020	2N1225.
CV9029	2N721.
CV9031	2N797.
CV9033	BUY11.
CV9039	GET882.
CV9040	ASY29.
CV9047	2N2894.
CV9048	2N2696.
CV9055	2N698.
CV9059	BCY40.
CV9069	GET881.
CV9070	GET889.
CV9071	GET892.
CV9074	BSY29.
CV9075	2N915.
CV9082	2N3002.
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CV9128	2N494.
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CV9130	2N1893.
CV9131	2N2150.
CV9132	2N2219.
CV9133	2N2484.
CV9134	2N2905.
CV9157	2N2918.
CV9184	2N597.
CV9192	2N2905A.
CV9211	2N706.
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CV9215	BSY95.
CV9216	2N3447.
CV9235	2N711.
CV9247	BCY31.
CV9250	2N297.
CV9251	2N397.
CV9255	2N3553.
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CV9259	OC83.
CV9261	2N1304.
CV9264	OC35.
CV9266	GET538.
CV9267	GET888.
CV9290	2N2893.
CV9291	2N914.
CV9293	2N3114.
CV9296	2N549.
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CV9308	NKT405.
CV9313	2N525A.
CV9318	2N1553.
CV9320	2N2368.
CV9324	2N669B.
CV9342	NKT404.
CV9351	AFZ12.
CV9352	2N1671B.
CV9354	2N2861.
CV9359	BUY10.
CV9360	BLY11.
CV9364	2N2223A.
CV9366	2N3072.
CV9367	2N2845.
CV9368	2N2484.
CV9372	NKT218.
CV9375	ACY30.
CV9378	BFX21.
CV9379	BSY95A.
CV9384	2N3235.
CV9395	2N2194.
CV9400	2N163.
CV9407	2N539.
CV9420	BCY18.
CV9426	BFY50.
CV9430	BCY30.
CV9431	BCY34.
CV9436	2N3441.
CV9437	2N3442.
CV9447	OC77.
CV9456	AU103.
CV9457	ACY39.
CV9463	2N1711.
CV9477	2N2338.
CV9481	2N1309.
CV9482	ACY17.
CV9483	ACY20.
CV9486	2N709.
CV9487	2N1534.
CV9496	2N1311.
CV9498	2N2656.
CV9508	BFY64.
CV9512	2N2979.
CV9513	2N3278.
CV9515	2N2824.
CV9518	2N2890.

CV9526	2N1754.
CV9538	BCY54.
CV9562	2N699.
CV9563	2N1305.
CV9564	2N2369A.
CV9577	2N1531.
CV9578	2N1748A.
CV9585	BFY20.
CV9588	2N3906.
CV9602	2N492A.
CV9603	2N2892.
CV9604	2N2102.
CV9605	2N3993.
CV9606	2N3824.
CV9611	2N657.
CV9616	2N1147.
CV9623	2N3467.
CV9624	2N3252.
CV9628	2N3232.
CV9635	2N2283.
CV9651	2N1488.
CV9657	2N964.
CV9667	2N3236.
CV9668	2N706B.
CV9669	2N2538.
CV9670	2N966.
CV9695	2N2646.
CV9697	2N3108.
CV9699	2N2369.
CV9700	2N1147B.
CV9701	2N3501.
CV9702	2N3637.
CV9703	2N1052.
CV9705	2N3503.
CV9706	2N3375.
CV9707	2N3478.
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CV9718	2N2887.
CV9724	BSY28.
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CV9734	2N342.
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CV9741	2N1488.
CV9742	2N1483.
CV9766	2N656.
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CV9777	AD161-162.
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CV9779	AC128.
CV9780	BC107.
CV9786	2N3584.
CV9791	2N3121.
CV9792	2N2193.

CV9793	2N3418.
CV9794	BSX23.
CV9797	OC83.
CV9798	2N1755.
CV9807	2N2067.
CV9808	2N1899.
CV9809	2N338.
CV9810	2N886.
CV9829	2N422.
CV9830	2N917.
CV9831	2N2287.
CV9832	2N158A.
CV9869	2N1973.
CV9872	2N2033.
CV9873	2N489.
CV9891	2N3019.
CV9895	BSY11.
CV9909	2N1016A.
CV9913	2N338.
CV9914	2N1131A.
CV9925	2N711A.
CV9926	2xASZ21.
CV9927	2xOC71.
CV9928	2xOC44.
CV9929	2xADZ11.
CV9939	BFY11.
CV9944	2N526.
CV9955	BUY11.
CV9956	BFY18.
CV9957	BSY25.
CV9958	BSY27.
CV9961	ASZ21.
CV9975	2N941.
CV9986	2N336.
CV9987	2N335.
CV9988	2N1647.
CV10018	2N910.
CV10037	2N1031B.
CV10041	2N2012.
CV10044	2N2916.
CV10046	2N3866.
CV10047	2N3632.
CV10048	2N2497.
CV10060	2N743.
CV10061	OC141.
CV10063	NKT677.
CV10068	OC171.
CV10075	2N1485.
CV10085	OC205.
CV10094	BCY32.
CV10095	2N1308.
CV10109	ASY66.
CV10139	OC468.
CV10140	2N3572.
CV10141	2N3110.
CV10142	2N2891.

CV10159	BFY52.
CV10160	ADZ11.
CV10162	2N1672.
CV10168	2N2945.
CV10183	ACY19.
CV10190	2N2904.
CV10202	NKT128.
CV10209	2xNKT404.
CV10215	2N1613.
CV10235	BCY72.
CV10236	BFY72.
CV10238	2N3543.
CV10243	BF115.
CV10266	OC20.
CV10267	2N3731.
CV10268	2N3643.
CV10269	2N3638.
CV10270	2N3566.
CV10271	2N3565.
CV10272	2N3251.
CV10273	OC43.
CV10274	2N711.
CV10275	ASY27.
CV10276	AF118.
CV10280	BCY38.
CV10283	ADY26.
CV10288	2N2068.
CV10304	2N718.
CV10309	2N2410.
CV10336	2N2222A.
CV10337	BSY38.
CV10338	BSY39.
CV10345	BDY10.
CV10350	2N2063.
CV10351	2N3302.
CV10352	2N3045.
CV10353	2N3051.
CV10357	2N424.
CV10376	GET880.
CV10379	BFY57.
CV10381	NKT401.
CV10384	2N140.
CV10391	2N2479.
CV10393	2N2405.
CV10410	2N2386.
CV10411	2N2865.
CV10412	2N2950.
CV10413	2N2951.
CV10414	2N2998.
CV10415	2N657.
CV10416	2N930.
CV10419	2N1566A.
CV10420	2N1049A.
CV10432	2N1132.
CV10441	2N3440.
CV10463	2N684.

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CV10471	BFY52.
CV10509	2N2218.
CV10511	2x2N743.
CV10520	BFY79.
CV10531	BFY44.
CV10532	2N3018.
CV10533	BFY90.
CV10540	BFX84.
CV10541	BC108.
CV10547	2N3234.
CV10548	2N4036.
CV10550	ACY22.
CV10552	2N3262.
CV10556	2N1489.
CV10557	2N497.
CV10558	2N3118.
CV10559	2N1595.
CV10560	3N35.
CV10561	2N3202.
CV10582	2N3636.
CV10563	2N2078.
CV10564	2N3702.
CV10575	2N3953.
CV10577	2N3323.
CV10580	2N383.
CV10581	2N1373.
CV10582	2N2189.
CV10583	2N2635.
CV10584	2N3391.
CV10585	2N2218A.
CV10588	2N2185.
CV10595	2N3436.
CV10601	2N657A.
CV10602	2N1481.
CV10618	BC108.
CV10622	2N688A.
CV10627	2N1146.
CV10629	BFX88.
CV10675	AC176.
CV10680	2N2192.
CV10681	BFY63.
CV10682	2N3703.
CV10683	2N3704.
CV10684	2N3819.
CV10686	2N1306.
CV10720	BFY17.
CV10736	2N2243.
CV10747	2N3504.
CV10766	2N4393.
CV10767	BF185.
CV10768	BF184.
CV10769	BC109.
CV10778	2xBFY72.
CV10779	2N3063.
CV10786	2N699B.

CV10787	2N3998.
CV10788	2N3420.
CV10789	2N3570.
CV10793	2N918.
CV10796	2N1908.
CV10806	BC109.
CV10814	BCY71.
CV10815	BSX21.
CV10818	2N4203.
CV10821	BFX39.
CV10824	2N2996.
CV10827	BFY51.
CV10828	2N3905.
CV10832	2N3823.
CV10836	BDY11.
CV10837	BCY55.
CV10838	2N2274.
CV10846	2N3773.
CV10850	BSX19.
CV10855	NKT228.
CV10885	3xOC35.
CV10886	BCY42.
CV10893	2N2444.
CV10895	2N512B.
CV10898	2N652A.
CV10899	2N1183B.
CV10900	2N2048.
CV10901	2N2043.
CV10905	BSY39.
CV10908	AF124.
CV10909	ASZ15.
CV10910	2N1041.
CV10911	2N495.
CV10912	2N718A.
CV10918	BCY55.
CV10930	2N4399.
CV10944	2N2641.
CV10945	2N727.
CV10946	2N3712.
CV10971	NKT143.
CV10980	2N2034.
CV10986	BSX30.
CV10990	BCY70.
CV10993	BD121.
CV10999	2N1554.
CV11000	2N2977.
CV11004	2N3823.
CV11007	2N3585.
CV11009	2N4860.
CV11010	2N5416.
CV11011	2N2613.
CV11012	BD123.
CV11013	BSX27.
CV11014	BCY43.
CV11034	BSW25.
CV11040	2N2925.

CV11041	2N3904.
CV11042	2N2207.
CV11043	2N967.
CV11044	2N2501.
CV11045	2N2148.
CV11046	2N2923.
CV11047	2N2924.
CV11054	BFX35.
CV11056	2N3741.
CV11057	2N1772.
CV11058	BFY82.
CV11061	2N3575.
CV11062	2N2604.
CV11064	3N74.
CV11066	2N3008.
CV11067	2N1776.
CV11078	BFX11.
CV11099	2N845.
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CV11142	2N4856.
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CV11229	2N1479.
CV11236	BCY71.
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