

$$N = 254 = 2 \cdot 127$$

By the Ibukiyama-Kitayama dimension formula,
 $\dim(S_4(K(254))) = 156$

By the Skoruppa-Zagier dimension formula and Jacobi restriction,
the lift dimension of $S_4(K(254))^+$ is 46
the nonlift dimension of $S_4(K(254))^+$ is heuristically 81
 $\dim(S_4(K(254))^+)$ thus is heuristically 127
 $\dim(S_4(K(254))^-)$ is heuristically 29

$\dim(J_{\{2,254\}}^{\{\text{cusp}\}}) = 5$ (Skoruppa-Zagier), so need to span to within 4 dimensions

$q = 7$ for TraceDown

After TD($\text{Grit}(J_{\{4,1778\}}^{\{\text{cusp}\}})$) and $(\text{Grit}(J_{\{2,254\}}^{\{\text{cusp}\}}))^2$,
spanned rank in $S_4(K(254))^+$ is 125
spanned rank in $S_4(K(254))^-$ is 0

Hecke operators applied: $\{\{2, 2\}, \{2, 2\}, \{2, 1\}\}$
After Hecke spreading,
spanned rank in $S_4(K(254))^-$ is 20

After Borcherds products,
spanned rank in $S_4(K(254))^-$ is 27

Final spanned rank in $S_4(K(254))^+$ is 125

Final spanned rank in $S_4(K(254))^-$ is 27

 $S_2(K(254))^+$ is determined by Jacobi restriction and the $H_4N_{d1}(2,+)$ test
($\dim(H_4(254,2,1)^+) \leq 5$ and this is less than $\dim(J_{\{2,254\}}^{\{\text{cusp}\}})+1 = 6$)
 $S_2(K(254))^- = 0$ by Jacobi restriction and the $H_4N_{d1}(2,-)$ test
($\dim(H_4(254,2,1)^-) \leq 4$ and this is less than $\dim(J_{\{2,254\}}^{\{\text{cusp}\}}) = 5$)

So $S_2(K(254)) = \text{Grit}(J_{\{2,254\}}^{\{\text{cusp}\}})$ (dimension 5)