

PSA/B - Suggested Alternatives - Spec. Comparison

		NRND	Suggested Alternatives	Suggested Alternatives
		KOA	KOA	KOA
		PSA/B	PSJ	※TLR3AP(improved ratings)
Resistance [mΩ]		0.2, 0.75, 1.0	0.2, 1.0	0.75, 1.0
Power Rating [W]		12.5W (0.2mΩ) 6W (0.75m、1.0mΩ)	12W (0.2mΩ) 8W (1.0mΩ)	5W(0.75mΩ: scheduled) 5W(1mΩ)
Terminal Part Temp [° C] Ambient Temp. [° C]		105 Terminal Part Temp.	75 Terminal Part Temp.	110(0.75mΩ: scheduled) 110(1mΩ) Terminal Part Temp.
Tol.[%]		±1	±1	±0.5, ±1
Dim.	L [mm]	10.0±0.25	10.0±0.25	6.35±0.25
	W [mm]	8.4±0.25	5.2±0.25	3.18±0.25
	t [mm]	1.10±0.25 (0.2mΩ) 0.65±0.25 (0.75m、1.0mΩ)	1.98±0.2 (0.2mΩ) 0.89±0.2 (1.0mΩ)	0.6±0.25
	d [mm]	3.8±0.25 (0.2mΩ) 3.5±0.25 (0.75mΩ) 3.0±0.25 (1.0mΩ)	2.0±0.25	2.675±0.25 (0.75mΩ) 2.2±0.25 (1.0mΩ)
T.C.R [ppm/K]		±100 (0.2mΩ) ±75 (0.75m、1.0mΩ)	±200 (0.2mΩ) ±75 (1.0mΩ)	±75(0.75mΩ,1.0mΩ)
Operating Temp. Range [° C]		-65 ~ +155	-65 ~ +175	-65 ~ +170



※TLR3AP0.75mΩ (improved ratings): under development

PSI - Suggested Alternatives - Spec. Comparison

		NRND	Suggested Alternative 1	Suggested Alternative 2
		KOA	KOA	KOA
		PSI	PSJ	TLR3AP improved ratings
Resistance [mΩ]		1.0, 2.0, 3.0, 4.0	1.0, 2.0, 3.0, 4.0	1.0, 2.0, 3.0, 4.0
Power Rating [W]		3W	8W (1.0mΩ) 6W (2.0mΩ) 5W (3.0mΩ, 4.0mΩ)	5W(1mΩ ~4mΩ)
Terminal Part Temp [° C] Ambient Temp. [° C]		105 Terminal Part Temp	75 Terminal Part Temp	110(1mΩ ~4mΩ) Terminal Part Temp
Tol. [%]		± 1	± 1	±0.5, ±1
Dim.	L [mm]	10.0±0.25	10.0±0.25	6.35±0.25
	W [mm]	5.2±0.25	5.2±0.25	3.18±0.25
	t [mm]	0.7±0.25	0.89±0.2 (1.0mΩ) 1.17±0.2 (2.0mΩ) 0.95±0.2 (3.0mΩ) 0.84±0.2 (4.0mΩ)	0.6±0.25
	d [mm]	2.0±0.25	2.0±0.25	2.2±0.25 (1.0mΩ,3.0mΩ,4.0mΩ) 2.5±0.25 (2.0mΩ)
T.C.R [ppm/K]		±75 (1.0mΩ, 2.0mΩ) ±50 (3.0mΩ, 4.0mΩ)	±75 (1.0mΩ, 2.0mΩ) ±50 (3.0mΩ, 4.0mΩ)	±75(1.0mΩ) ±75,±50(2.0mΩ,3.0mΩ,4.0mΩ)
Operating Temp. Range [° C]		-65 ~ +155	-65 ~ +175	-65 ~ +170



PSE - Suggested Alternatives - Spec. Comparison

		NRND	Suggested Alternative	Alternative(under development)
		PSE	PSL	TLR3AP (improved ratings)
Resistance [mΩ]		0.5, 1.0, 1.5, 2.0	0.2, 0.3, 0.5	0.5 ~ 0.82mΩ Oct. 2020 1, 1.5, 2mΩ Dec. 2019
Power Rating [W]		5W	9W (0.2mΩ) 8W (0.3mΩ) 7W(0.5mΩ)	3W→5W(Target)
Terminal Part Temp [° C] Ambient Temp. [° C]		105(0.5mΩ, 1.0mΩ) 85(1.5mΩ) 70(2.0mΩ) Terminal Part Temp	75 Terminal Part Temp	110 Terminal Part Temp
	Tol.[%]	±1, ±5	±1	±1
Dim.	L [mm]	6.40±0.25	6.3±0.15	6.35±0.25
	W [mm]	6.40±0.25	3.15±0.15	3.18±0.25
	t [mm]	0.65±0.25 (0.5mΩ,1.0mΩ) 0.50±0.25 (1.5m、2.0mΩ)	1.40±0.15 (0.2mΩ) 1.32±0.15 (0.3mΩ) 1.12±0.15(0.5mΩ)	0.6 ±0.25
	d [mm]	2.20±0.25	1.15±0.15	0.77 ~ 2.725 ±0.25
T.C.R [ppm/K]		±150	250±100 (0.2mΩ) ±175 (0.3mΩ) ±115(0.5mΩ)	±75 or ±50
Operating Temp. Range [° C]		-65 ~ +155	-65 ~ +175	-65 ~ +170



TLR3A - Suggested Alternatives - Spec. Comparison

		NRND	Suggested Alternative (2W)	Suggested Alternative (3W)
		TLR3A	TLR3AW	TLR3AP
Resistance [mΩ]		1, 2, 3, 4	0.5-10mΩ (Including 1, 2, 3, 4mΩ)	0.5-10mΩ (Including 1, 2, 3, 4mΩ)
Power Rating [W]		1W	2W	3W
Terminal Part Temp [° C] Ambient Temp.[° C]		105 Terminal Part Temp.	105 Terminal Part Temp.	110 or 90 (9-10mΩ) Terminal Part Temp.
Tol.[%]		±1	±1	±1
Dim.	L [mm]	6.35±0.25	6.35±0.25	6.35±0.25
	W [mm]	3.18±0.25	3.18±0.25	3.18±0.25
	t [mm]	0.62±0.25	0.62±0.25	0.62±0.25
	d [mm]	2.20±0.25 (1mΩ) 1.20±0.25 (2mΩ) 1.85±0.25 (3mΩ) 1.20±0.25 (4mΩ)	2.20±0.25	2.20±0.25 (1mΩ) 2.50±0.25 (2mΩ) 2.20±0.25 (3mΩ) 2.20±0.25 (4mΩ)
T.C.R [ppm/K]		±150(1, 2mΩ) ±200(3, 4mΩ)	±75	±50(2mΩ) ±75(1, 3, 4mΩ)
Operating Temp. Range [° C]		-65 ~ +170	-65 ~ +155	-65 ~ +170

※ Either 2W(TLR3AW) or 3W(TLR3AP) can cover.



TLR1E - Suggested Alternatives - Spec. Comparison

		NRND	Suggested Alternative 1	Suggested Alternative 2
		TLR1E	TLRZ1E	TLR2A
Resistance [mΩ]		10	0.5mΩ max.	10
Power Rating [W]		0.2W	Rated Current 10A	1.0W
Terminal Part Temp [° C] Ambient Temp. [° C]		105 Terminal Part Temp.	105 Ambient Temp.	105 Ambient Temp.
	Tol.[%]	±2, ±5	-	±1
Dim.	L [mm]	1.0±0.05	1±0.1	2.0±0.2
	W [mm]	0.5±0.05	0.5±0.1	1.25±0.2
	t [mm]	0.25±0.1	0.4±0.05	0.26±0.15
	d [mm]	0.3±0.1	0.2±0.1	0.35±0.20
T.C.R [ppm/K]		±100	-	±100
Operating Temp. Range [° C]		-65 ~ +125	-55~155	-65 ~ +155



TLRH2A 10mΩ → TLR2A 10mΩ

■ Suggested Alternative Spec. Comparison

		TLRH2A	TLR2A
Resistance [mΩ]		10m-100mΩ (E12) After change → 12m-100mΩ (E12)	2, 3, 4, 5, 6, 7, 8, 9, 10mΩ
Power Rating [W]		0.25W(56-100mΩ) 0.33W(33-50mΩ) 0.50W(10-27mΩ)	1W
Terminal Part Temp [° C] Ambient Temp. [° C]		105 Terminal Part Temp.	105 Terminal Part Temp.
	Tol.[%]	±1	±1
Dim.	L [mm]	2.0±0.2	2.0±0.2
	W [mm]	1.25±0.2	1.25±0.2
	t [mm]	0.25±0.15	0.26±0.15
	d [mm]	0.35±0.2	0.35±0.2(10mΩ)
T.C.R [ppm/K]		±75	±100
Operating Temp. Range [° C]		-65 ~ +155	-65 ~ +155

10 mΩ : Replaceable by TLR2A

