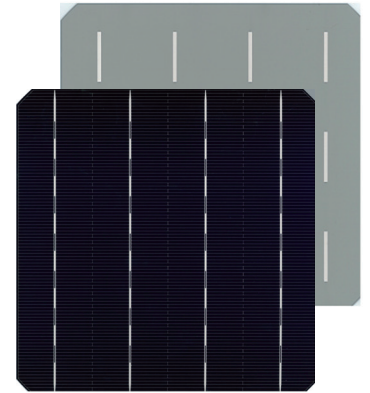


TNM4-156

Monocrystalline Solar Cell

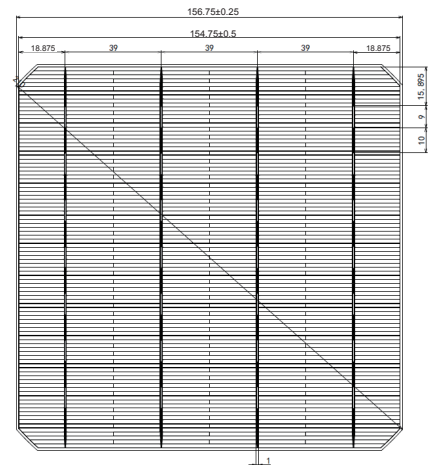


Dimension	156.75mm x 156.75mm ± 0.25mm
Diagonal	210mm ± 0.5mm (round chamfers)
Thickness(Si)	180µm ± 20µm, 200µm ± 20µm
Front	Anisotropically texturized surface and dark silicon nitride anti-reflection coatings 1.0mm hollow silver busbars
Back	Full-surface aluminum back-surface field 2.0mm (silver / aluminum) discontinuous soldering pads



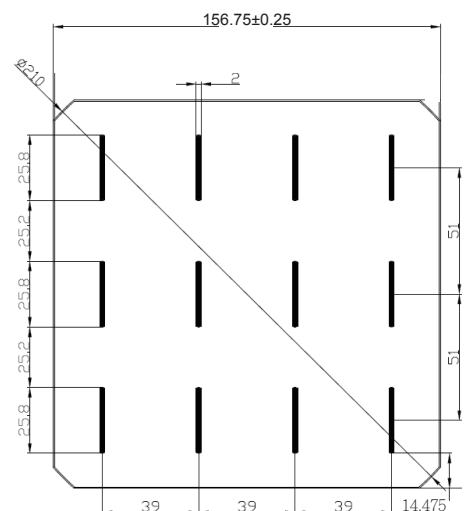
► Features

- > High conversion efficiencies resulting in superior power output performance
- > Outstanding power output even in low light or high temperature conditions
- > Optimized design for ease of soldering and lamination
- > Long-term stability, reliability and performance
- > Low breakage rate
- > Uniform Color



► Production and Quality Control

- > Precision cell efficiency sorting procedures
- > Stringent criteria for color uniformity and appearance
- > Reverse current and shunt resistance screening
- > ISO9001, ISO14001 and OHSAS 18001 certificated
- > Calibrated against Fraunhofer ISE



► Electrical Performance

		203	202	201	200	199
Efficiency	Eff(%)	20.30	20.20	20.10	20.00	19.90
Power	P _{pm} (W)	4.96	4.94	4.91	4.89	4.86
Max. Power Current	I _{pm} (A)	8.92	8.89	8.86	8.83	8.80
Short Circuit Current	I _{sc} (A)	9.38	9.36	9.33	9.31	9.28
Max. Power Voltage	V _{pm} (V)	0.556	0.555	0.554	0.553	0.552
Open Circuit Voltage	V _{oc} (V)	0.648	0.648	0.647	0.647	0.646
Efficiency Code		198	197	196	195	194
Efficiency	Eff(%)	19.80	19.70	19.60	19.50	19.40
Power	P _{pm} (W)	4.84	4.81	4.79	4.76	4.74
Max. Power Current	I _{pm} (A)	8.77	8.75	8.72	8.69	8.66
Short Circuit Current	I _{sc} (A)	9.25	9.24	9.21	9.19	9.16
Max. Power Voltage	V _{pm} (V)	0.552	0.550	0.550	0.549	0.548
Open Circuit Voltage	V _{oc} (V)	0.645	0.645	0.645	0.644	0.644

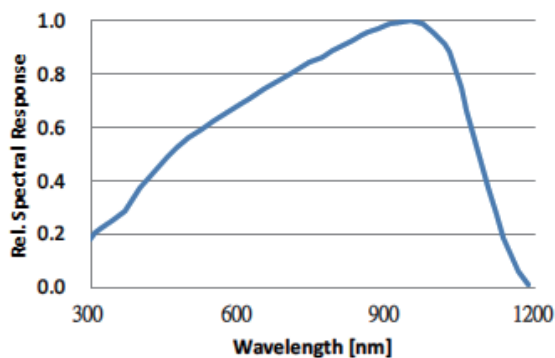
Standard test conditions: AM1.5, 1000W/m², 25°C. Average accuracy of all tested figures is ±1.5% rel.

► Temperature Coefficients

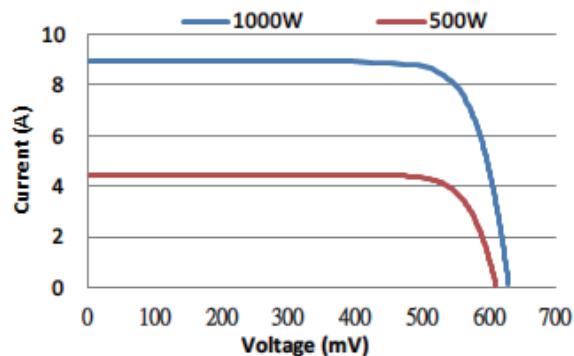
Current Temperature Coefficient	$\alpha(I_{sc})$	0.02%/°C
Voltage Temperature Coefficient	$\beta(V_{oc})$	-0.32%/°C
Power Temperature Coefficient	$\gamma(P_{max})$	-0.43%/°C

Standard test conditions : AM1.5, 1000W/m², 25°C.

► Spectral Response(SR)



► IV Curve



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