TEMIC

TELEFUNKEN Semiconductors

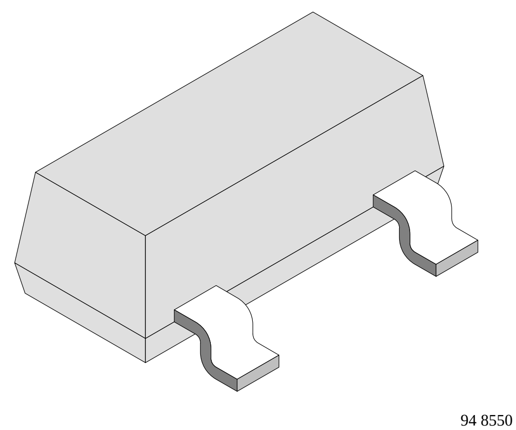
TLM.2200

SMT LEDs in Tinted Diffused Packages

Color	Type	Technology	Angle of half intensity ±φ
High efficiency red	TLMR2200	GaAsP on GaP	70°
Yellow	TLMY2200	GaAsP on GaP	
Green	TLMG2200	GaP on GaP	

Description

The TLM.2200 series is suitable for very flat backlighting applications like key pad illumination or indicatior displays.
The wide viewing angle allows users to assemble LEDs with uniform appearance.



Features

- Standard SOT 23 package
- Especially for surface mounting on printed boards
- Luminous intensity categorized
- Yellow and green color categorized
- Small mechanical tolerances
- Suitable for DC and high peak current

Applications

Status lights
OFF / ON indicator
Background illumination
Readout lights
Maintenance lights
Legend light
Backlighting

Absolute Maximum Ratings

T_{amb} = 25°C, unless otherwise specified

TLMR2200 ,TLMY2200 ,TLMG2200

Parameter	Test Conditions	Type	Symbol	Value	Unit
Reverse voltage			V_R	6	V
DC forward current			I_F	23	mA
Surge forward current	t_p ≤ 10 μs		I_{FSM}	1	A
Power dissipation	T_{amb} ≤ 30˚C		P_V	70	mW
Junction temperature			T_j	100	˚C
Storage temperature range			T_{stg}	–55 to +100	˚C
Soldering temperature	t ≤ 5 s		T_{sd}	240	˚C
Thermal resistance junction/ambient			R_{thJA}	1000	K/W

Optical and Electrical Characteristics

T_{amb} = 25°C, unless otherwise specified

High efficiency red (**TLMR2200**)

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	I_F = 10 mA		I_V	1	2		mcd
Dominant wavelength	I_F = 10 mA		λ_d	612		625	nm
Peak wavelength	I_F = 10 mA		λ_p		635		nm
Angle of half intensity	I_F = 10 mA		φ		±70		deg
Forward voltage	I_F = 20 mA		V_F		2	3	V
Reverse voltage	I_R = 10 μA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		50		pF

Yellow (**TLMY2200**)

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	I_F = 10 mA,		I_V	0.4	1.3		mcd
Dominant wavelength	I_F = 10 mA		λ_d	581		594	nm
Peak wavelength	I_F = 10 mA		λ_p		585		nm
Angle of half intensity	I_F = 10 mA		φ		±70		deg
Forward voltage	I_F = 20 mA		V_F		2.4	3	V
Reverse voltage	I_R = 10 μA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		50		pF

Green (**TLMG2200**)

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	I_F = 10 mA		I_V	0.4	1.3		mcd
Dominant wavelength	I_F = 10 mA		λ_d	562		575	nm
Peak wavelength	I_F = 10 mA		λ_p		565		nm
Angle of half intensity	I_F = 10 mA		φ		±70		deg
Forward voltage	I_F = 20 mA		V_F		2.4	3	V
Reverse voltage	I_R = 10 μA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		50		pF

Typical Characteristics (T_{amb} = 25°C, unless otherwise specified)

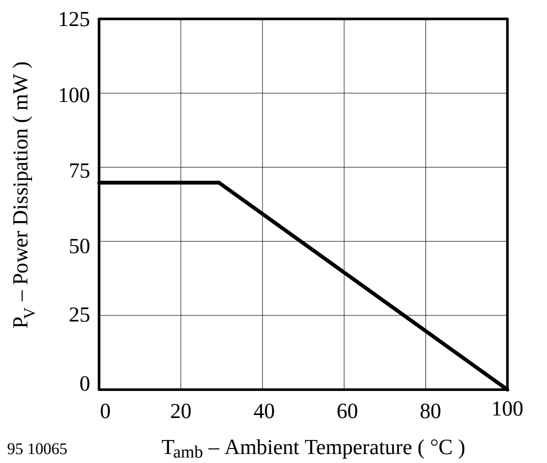


Figure 1. Power Dissipation vs. Ambient Temperature

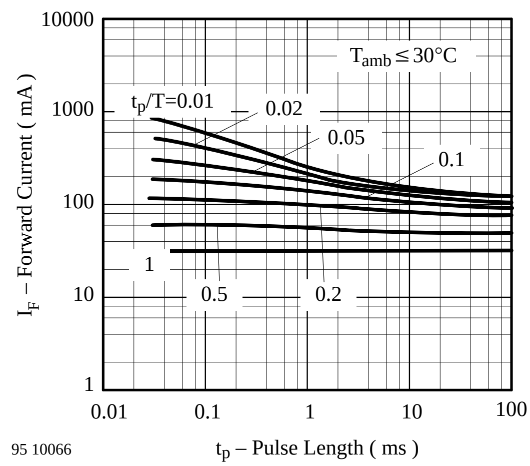


Figure 3. Forward Current vs. Pulse Length

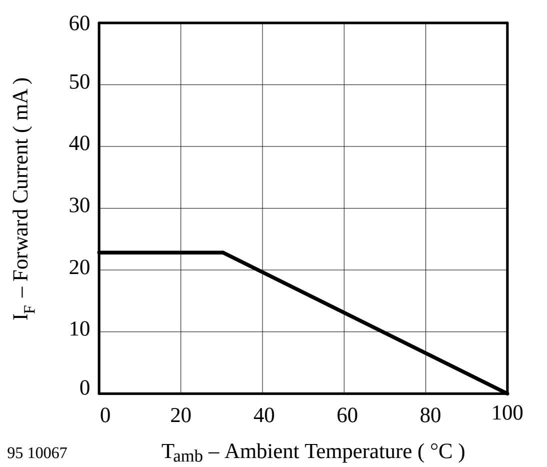


Figure 2. Forward Current vs. Ambient Temperature

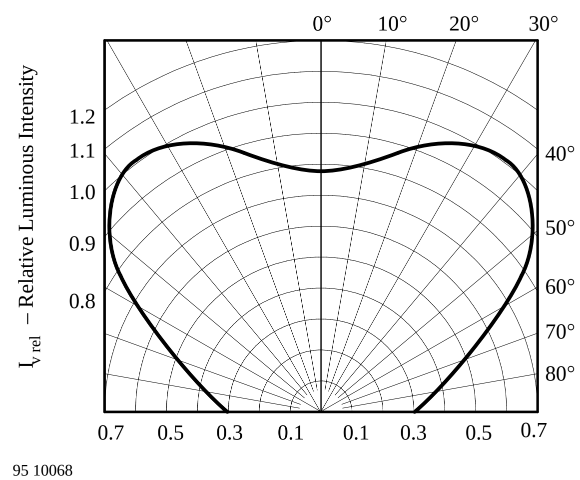


Figure 4. Rel. Luminous Intensity vs. Angular Displacement

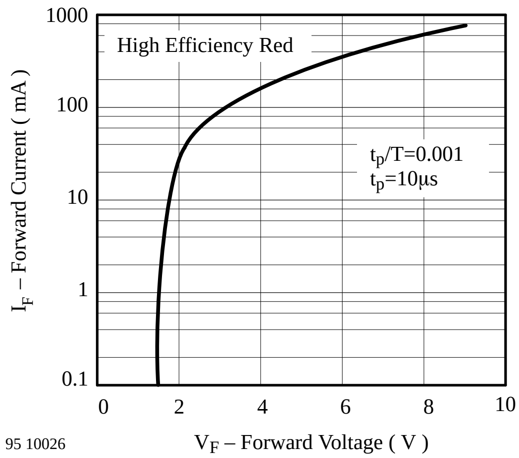


Figure 5. Forward Current vs. Forward Voltage

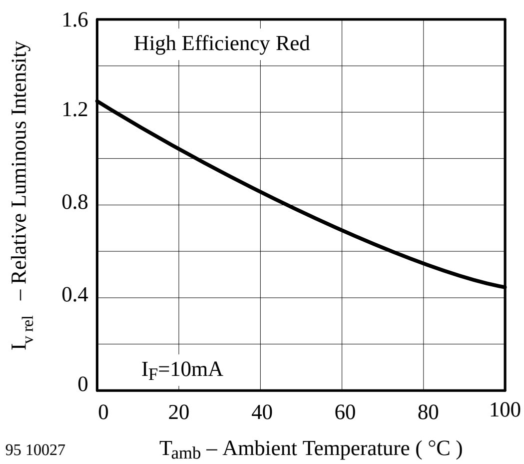


Figure 6. Rel. Luminous Intensity vs. Ambient Temperature

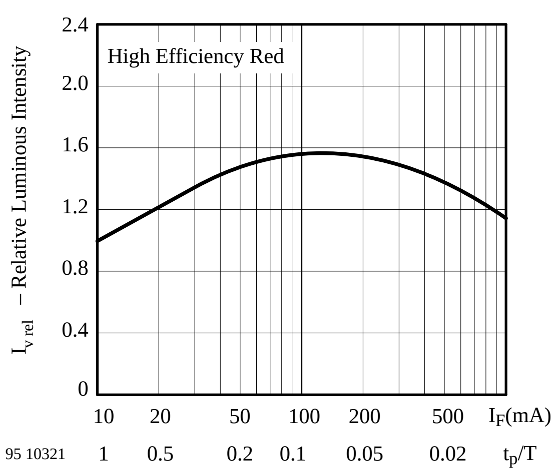


Figure 7. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

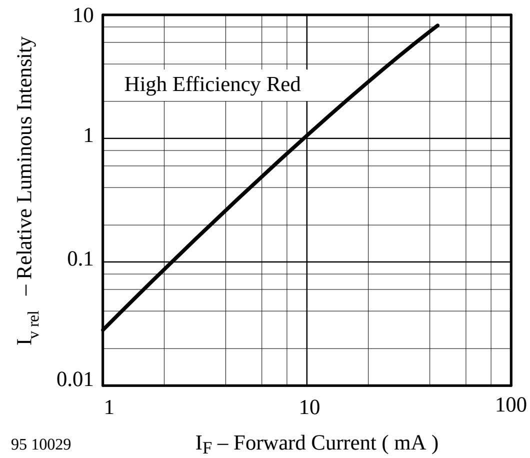


Figure 8. Relative Luminous Intensity vs. Forward Current

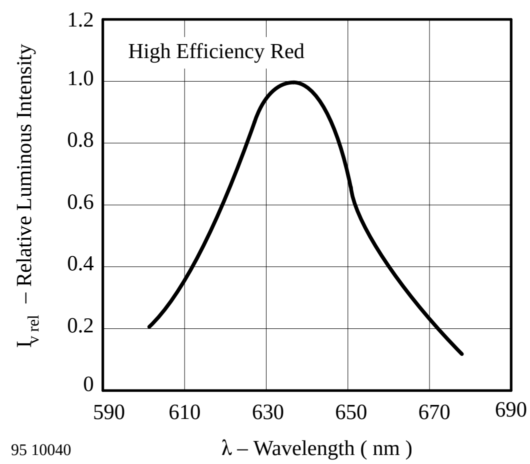


Figure 9. Relative Luminous Intensity vs. Wavelength

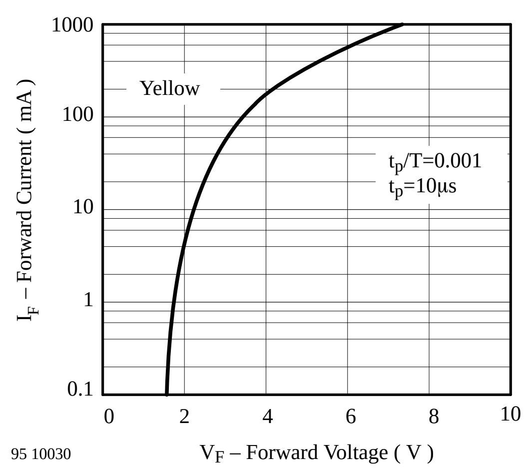


Figure 10. Forward Current vs. Forward Voltage

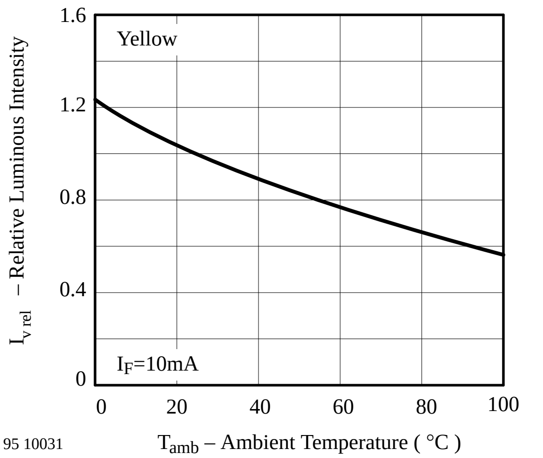


Figure 11. Rel. Luminous Intensity vs. Ambient Temperature

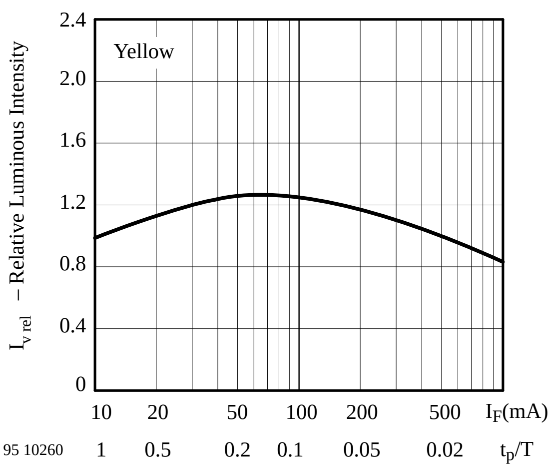


Figure 12. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

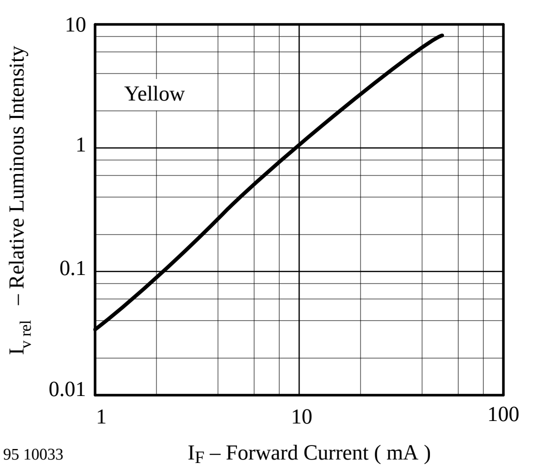


Figure 13. Relative Luminous Intensity vs. Forward Current

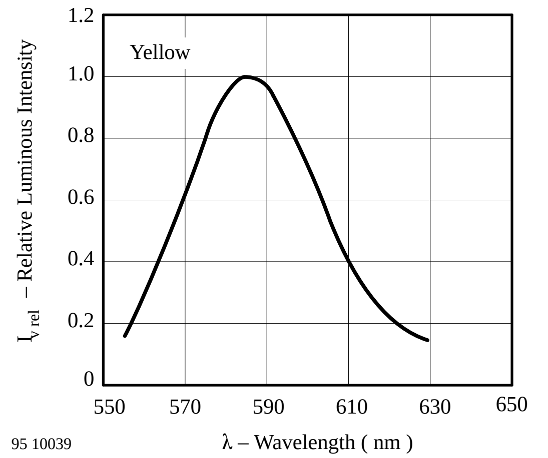


Figure 14. Relative Luminous Intensity vs. Wavelength

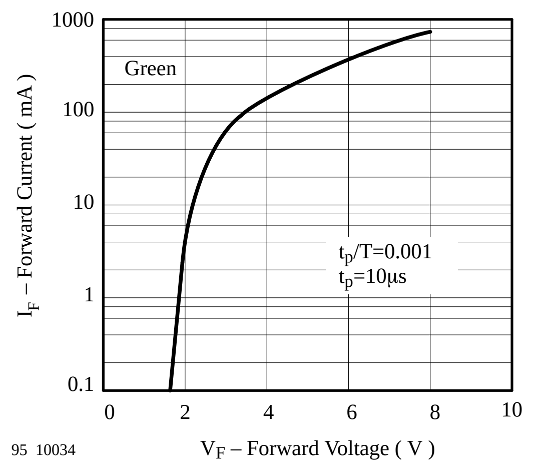


Figure 15. Forward Current vs. Forward Voltage

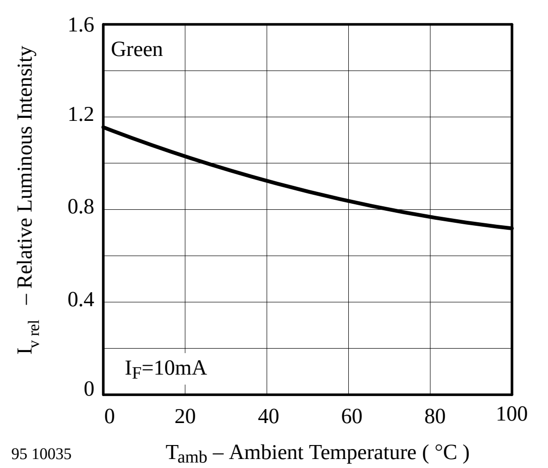


Figure 16. Rel. Luminous Intensity vs. Ambient Temperature

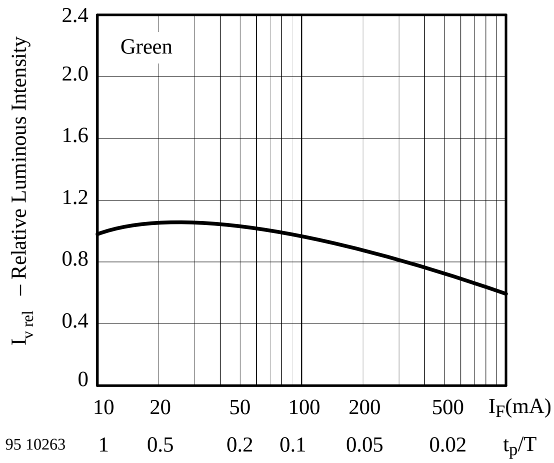


Figure 17. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

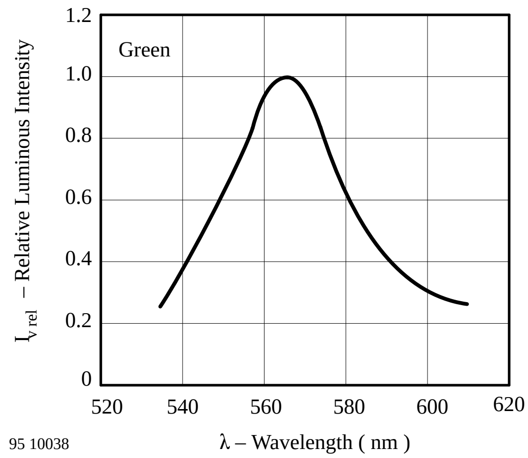


Figure 19. Relative Luminous Intensity vs. Wavelength

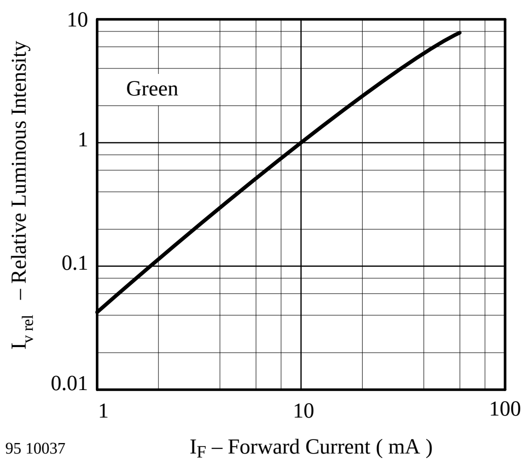
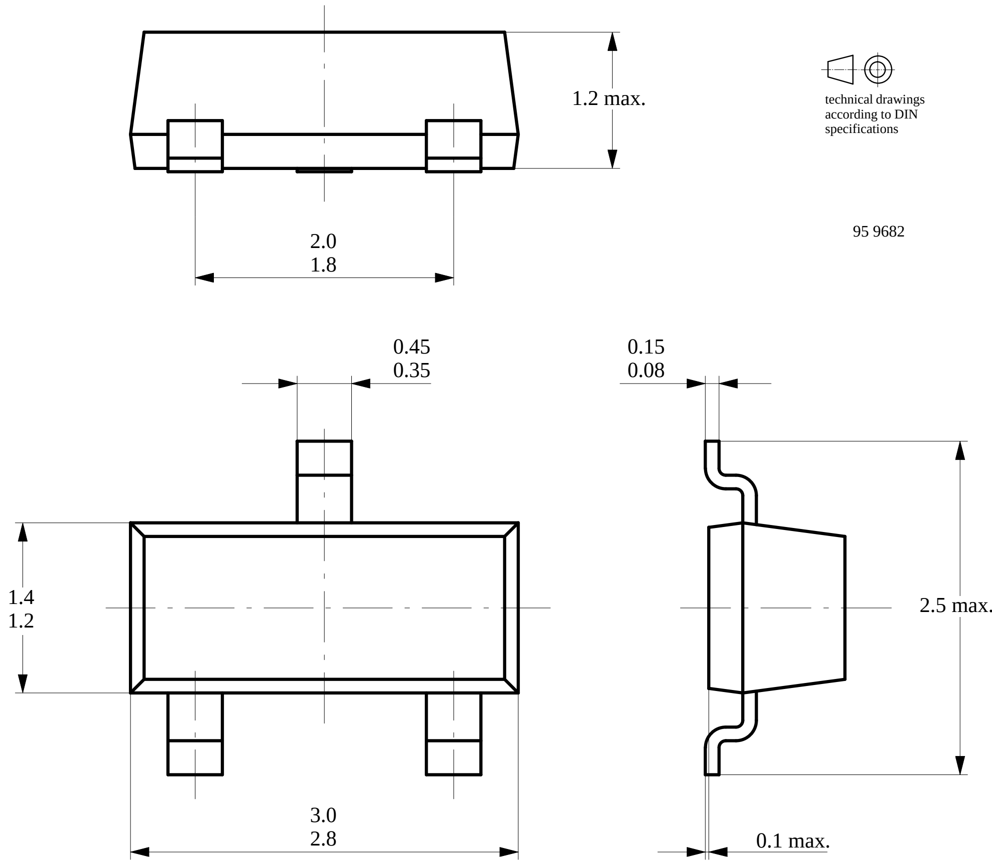
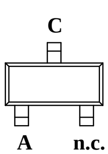


Figure 18. Relative Luminous Intensity vs. Forward Current

Dimensions in mm





Standard Plastic Case
23 A 3 DIN 41869/8
JEDEC TO 236
SOT 23

95 10910

Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

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