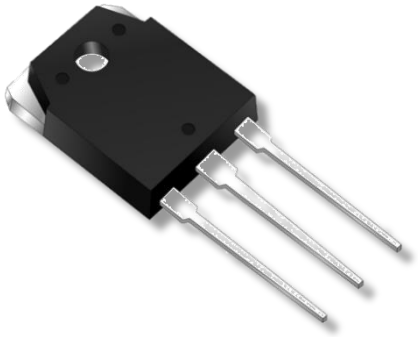


CEWP85N75

75V ▲ 10mΩ ▲ 89A ▲ Si MOSFET

SILICON Si MOSFET ▲ THT type
N-channel enhancement mode
UL94V-0 rated flame retardant epoxy
TO3P-3L package
Super high dense cell density for extremely low $R_{DS(ON)}$
High power and current handling capability

MAXIMUM RATINGS

Parameter (T_C = 25°C, unless otherwise noted)		Characteristics
Drain-Source Voltage	V_{DS}	75V
Gate-Source Voltage	V_{GS}	±30V
Continuous Drain Current at T_C = 25°C	I_D	89A
Continuous Drain Current at T_C = 100°C	I_D	56A
Pulsed Drain Current Note 1	I_{DM}	356A
Maximum Power Dissipation at T_C = 25°C	P_D	208W
Power Dissipation Derating above 25°C	ΔP_D	1.7W/°C
Operating and Storage Temperature Range	T_J, T_{STG}	-55°C to +150°C

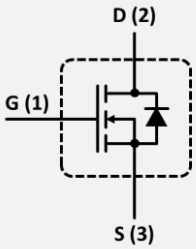
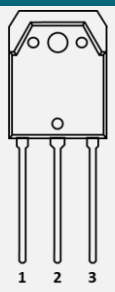
THERMAL CHARACTERISTICS

Parameter	Symbol	Limit
Thermal Resistance, Junction-to-Case	R_{TH_JC}	0.6°C/W
Thermal Resistance, Junction-to-Ambient	R_{TH_JA}	62.5°C/W

APPLICATIONS

Audio Amplifier	Battery Management Systems	Industrial Control	Power Inverter	UPS
				

PIN DESCRIPTION

Circuit Diagram	Outline ▪ Front View	Pin No.	Description
		1 2 3	Gate Drain Source

ELECTRICAL CHARACTERISTICS ▲ T_C = 25°C, unless otherwise noted

Item	Condition	Symbol	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	BV_{DSS}	75			V
Zero Gate Voltage Drain Current	V_{DS} = 75V, V_{GS} = 0V	I_{DSS}			1	μA
Gate Body Leakage Current, Forward	V_{GS} = 30V, V_{DS} = 0V	I_{GSSF}			100	nA
Gate Body Leakage Current, Reverse	V_{GS} = -30V, V_{DS} = 0V	I_{GSSR}			-100	nA
On Characteristics Note 2						
Gate Threshold Voltage	V_{GS} = V_{DS}, I_D = 250μA	$V_{GS(th)}$	2		4	V
Static Drain-Source On-Resistance	V_{GS} = 10V, I_D = 40A	$R_{DS(ON)}$		10	12	mΩ
Dynamic Characteristics Note 3						
Input Capacitance	V_{DS} = 25V, V_{GS} = 0V, f = 1MHz	C_{ISS}		3045		pF
Output Capacitance	V_{DS} = 25V, V_{GS} = 0V, f = 1MHz	C_{OSS}		670		pF
Reverse Transfer Capacitance	V_{DS} = 25V, V_{GS} = 0V, f = 1MHz	C_{RSS}		1		pF
Switching Characteristics Note 3						
Turn-On Delay Time	V_{DD} = 37.5V, V_{GS} = 10V, I_D = 45A, $R_{G(ext)}$ = 4.7Ω	$t_{D(ON)}$		32		ns
Turn-On Rise Time	V_{DD} = 37.5V, V_{GS} = 10V, I_D = 45A, $R_{G(ext)}$ = 4.7Ω	t_R		14		ns
Turn-Off Delay Time	V_{DD} = 37.5V, V_{GS} = 10V, I_D = 45A, $R_{G(ext)}$ = 4.7Ω	$t_{D(OFF)}$		78		ns
Turn-Off Fall Time	V_{DD} = 37.5V, V_{GS} = 10V, I_D = 45A, $R_{G(ext)}$ = 4.7Ω	t_F		17		ns
Total Gate Charge	V_{DS} = 60V, V_{GS} = 10V, I_D = 75A	Q_G		93		nC
Gate Source Charge	V_{DS} = 60V, V_{GS} = 10V, I_D = 75A	Q_{GS}		14		nC
Gate Drain Charge	V_{DS} = 60V, V_{GS} = 10V, I_D = 75A	Q_{GD}		36		nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Current		I_S			89	A
Drain-Source Diode Forward Voltage Note 2	V_{GS} = 0V, I_S = 89A	V_{SD}			1.5	V

Notes

1: Repetitive Rating: Pulse width limited by maximum junction temperature

2: Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

3: Guaranteed by design, not subject to production testing.

REFERENCE DATA ▲ TYPICAL DEVICE PERFORMANCE

Fig. 1 ▪ Output Characteristics

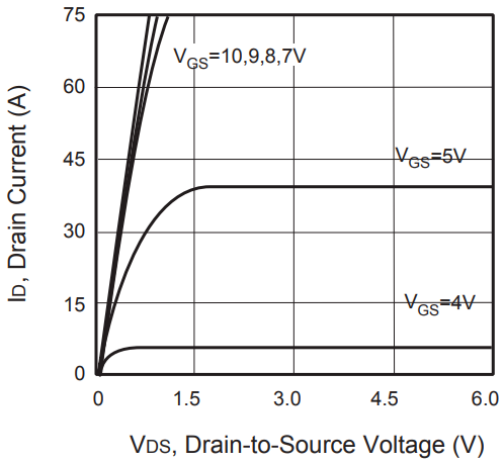


Fig. 2 ▪ Transfer Characteristics

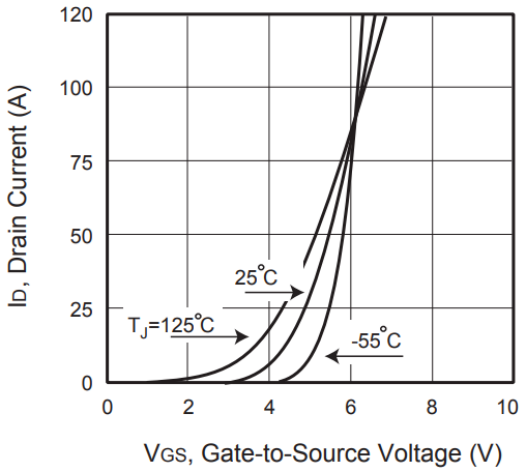


Fig. 3 ▪ Capacitance

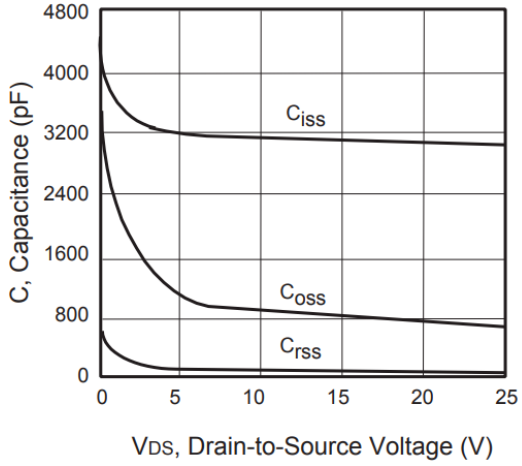


Fig. 4 ▪ On-Resistance Variation with Temperature

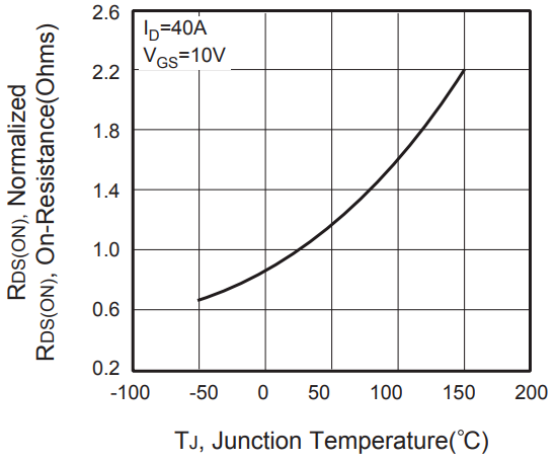


Fig. 5 ▪ Gate Threshold Variation with Temperature

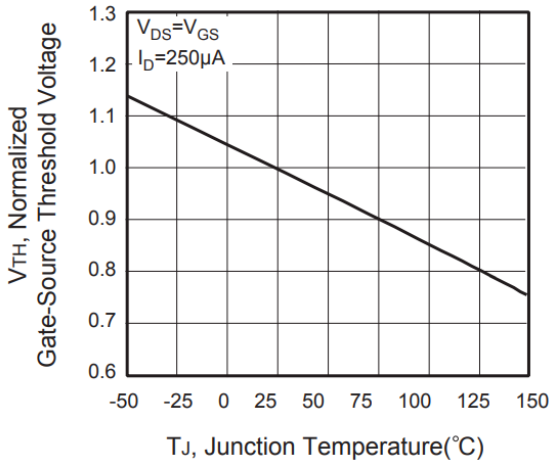
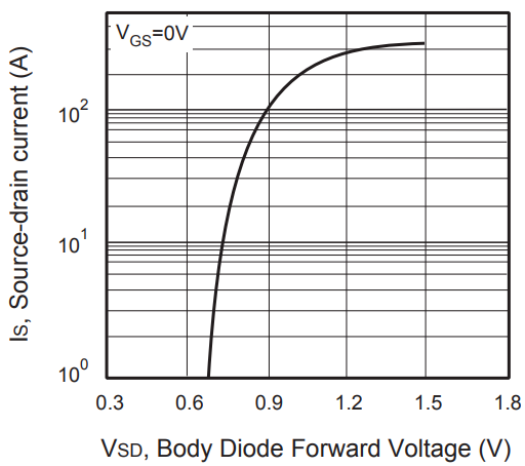


Fig. 6 ▪ Body Diode Forward Voltage Variation with Source Current



REFERENCE DATA ▲ TYPICAL DEVICE PERFORMANCE

Fig. 7 ▪ Gate Charge

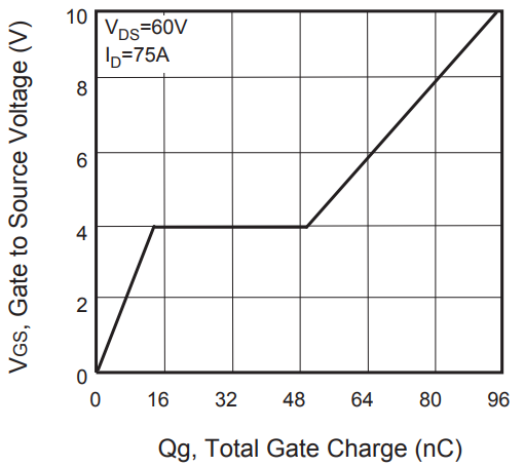


Fig. 8 ▪ Maximum Safe Operating Area

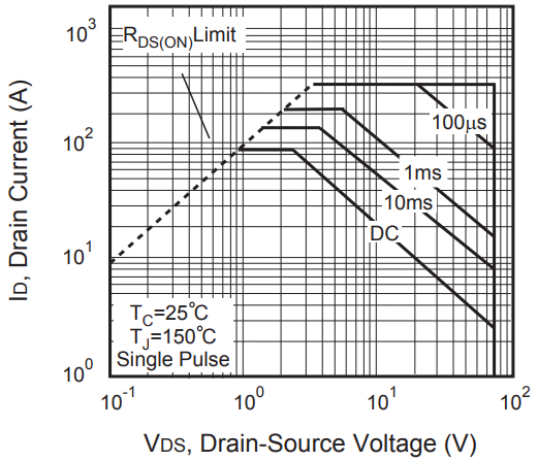


Fig. 9 ▪ Switching Test Circuit

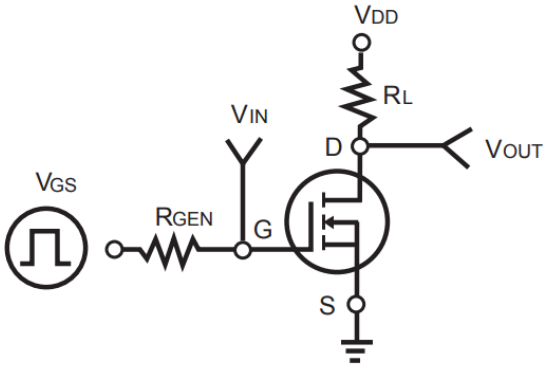


Fig. 10 ▪ Switching Waveforms

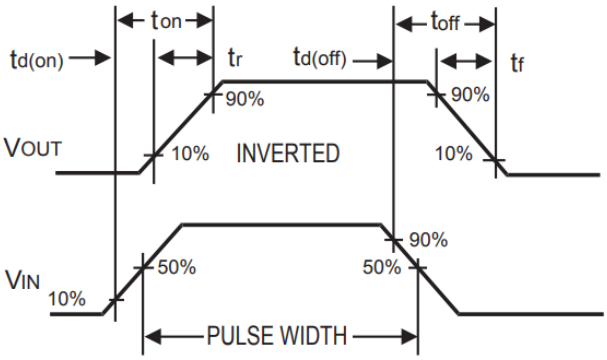
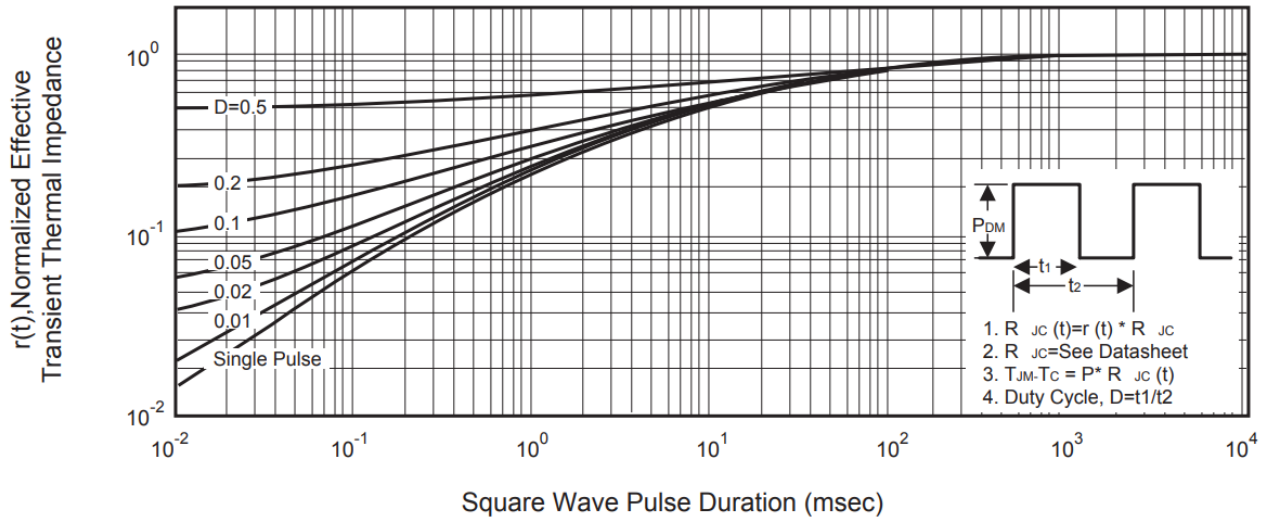
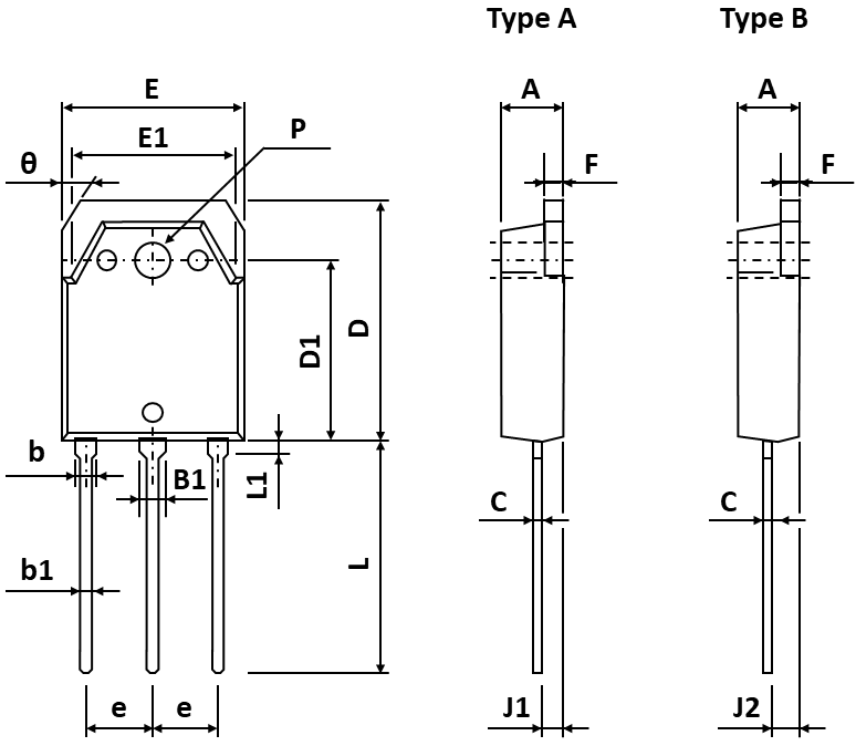


Fig. 11 ▪ Normalized Thermal Transient Impedance Curve



PACKAGE OUTLINE



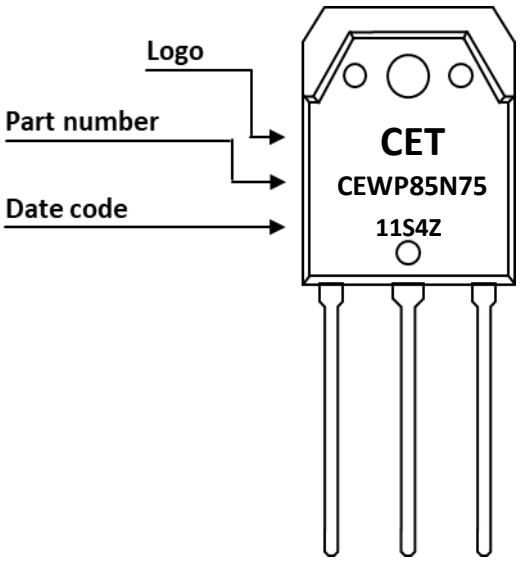
Sym	Millimeters (Min.)	Millimeters (Typ.)	Millimeters (Max.)
A	4.500	-	5.100
B1	2.800	-	3.200
b	1.800	-	2.200
b1	0.800	-	1.200
C	0.500	-	0.700
D	19.200	-	20.300
D1	14.200	-	15.200
E	15.400	-	15.800
E1	13.400	-	13.800

Sym	Millimeters (Min.)	Millimeters (Typ.)	Millimeters (Max.)
e		5.45 BSC	
F	1.400	-	1.800
J1	1.200	-	1.600
J2	2.200	-	2.600
L	19.800	-	21.000
L1	3.100	-	3.850
P	3.200	-	3.500
Θ	0°	-	30°

ORDERING INFORMATION

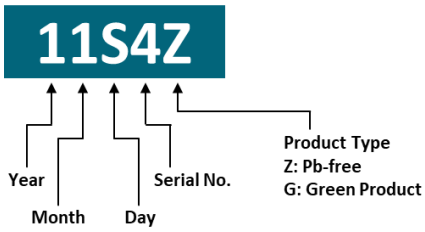
Part Number	Package	Packing	Tube Qty.	Inner Box Qty.	Outer Box Qty.
CEWP85N75	TO-3P-3L	Tube	30pcs	450pcs	1,800pcs

PART MARKING



DATE CODE

Example: 11S4Z



Coding list for „Day“

1	2	3	4	5	6	7	8	9	A
01	02	03	04	05	06	07	08	09	10
B	C	D	E	F	G	H	I	J	K
11	12	13	14	15	16	17	18	19	20
L	M	N	O	P	Q	R	S	T	U
21	22	23	24	25	26	27	28	29	30
V									
31									

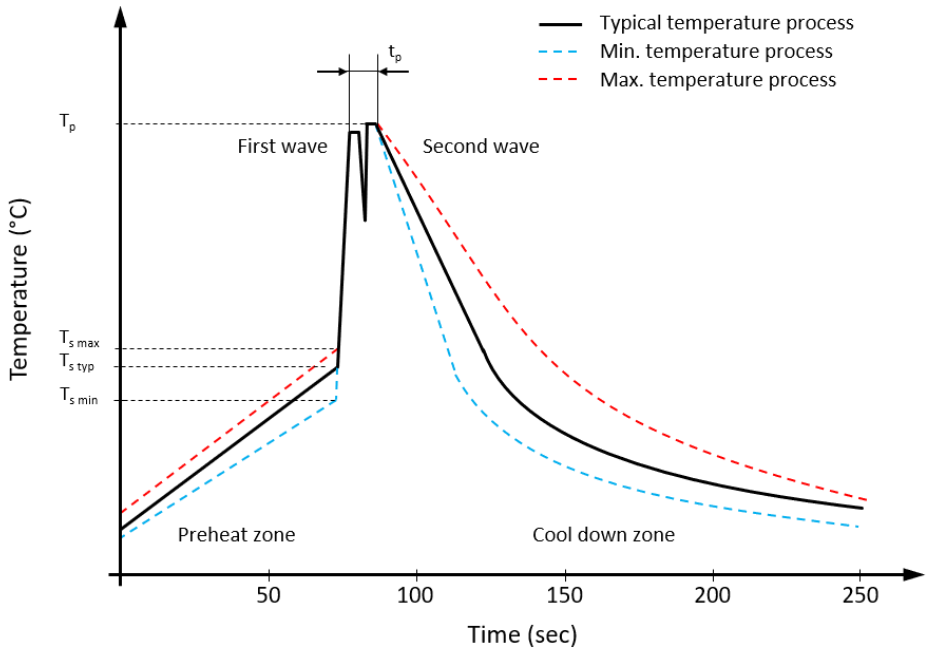
Coding list for „Month“

1	2	3	4	5	6
Jan	Feb	Mar	Apr	May	Jun
7	8	9	A	B	C
Jul	Aug	Sep	Oct	Nov	Dec

Coding list for „Year“

0	1	2	3	4
2020	2021	2022	2023	2024
5	6	7	8	9
2025	2026	2027	2028	2029

RECOMMENDED WAVE SOLDERING PROFILE ▲ THT PACKAGE



Classification wave soldering profile ▲ Refer to EN 61760-1: 2006

Profile Features		Value ▲ Sn-Pb Assembly	Value ▲ Pb-free Assembly
Preheat temperature min.	$T_{s\ min}$	100 °C	100 °C
Preheat temperature typical	$T_{s\ typ}$	120 °C	120 °C
Preheat temperature max.	$T_{s\ max}$	130 °C	130 °C
Preheat time t_s from $T_{s\ min}$ to $T_{s\ max}$	t_s	70 seconds	70 seconds
Peak temperature	T_p	235 °C to 260 °C	245 °C to 260 °C
Time of actual peak temperature	t_p	Max. 10 seconds Max. 5 second each wave	Max. 10 seconds Max. 5 second each wave
Ramp-down date min.		~ 2 °C/second	~ 2 °C/second
Ramp-down rate typical		~ 3.5 °C/second	~ 3.5 °C/second
Ramp-down rate max.		~ 5 °C/second	~ 5 °C/second
Time 25°C to 25°C		4 minutes	4 minutes

REVISION TABLE

Revision	Date	Status	Notes
001	30/09/2022	Initial release	Initial publication

DISCLAIMER

Except for the written expressed warranties, MGT does not implicitly, by assumption or whatever else, warrant, under-take, promise any other warranty or guaranty for any MGT product.

All information and technical specifications made available by MGT are for guidance only and we reserve the right to change or modify them without prior notice. Unless expressly stated in writing by MGT, we reject any guarantees, obligations, or warranties.

All MGT products with the technical specifications described are suitable for use in certain applications. Operating, production, storage and environmental conditions can have a massive influence on the parameters mentioned in the data sheets, which cause the performance to vary over time.

It is subject to the user's duty of care to design and validate his products in such a way that appropriate measures are taken, such as protective circuits or redundant systems to ensure the safety standards required in the application.

MGT components are not designed or rated for use in life support, rescue, safety critical, military, or aerospace applications where failure or malfunction could result in property or environmental damage, serious injury or death. In the aforementioned cases, please contact us before using MGT products.

In principle, we reserve all rights and MGT's general terms and conditions apply. You can find them on our website www.mgt.co.com.