

Product Summary

V_{DS} (V)	$R_{DS(on),max}$ (mΩ)	I_D (A)
100	1.6 @ $V_{GS} = 10V$	310 ⁽¹⁾

Features

- ❖ Low $R_{DS(on)}$
- ❖ Trench power MOSFET
- ❖ Low Gate Charge

Application

- ❖ Stored energy
- ❖ Electric motorcycle

General Information

Shipping

- ❖ One shipping options is offered as standard
- ❖ Un-sawn wafer

Handling

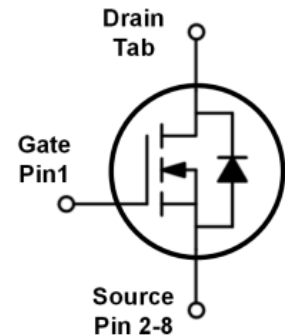
- ❖ Product must be handled only at ESD safe workstations. Standard ESD precautions and safe work environments are as defined in MIL-HDBK-263.
- ❖ Product must be handled only in a class 10,000 or better-designated clean room environmen



TOLL

NOTE:
 LOGO - GS
 GMXXXXX- Part number code
 F - Fab location code
 A - Assembly location code
 Y - Year code
 WW - Week code
 L&T - Assembly lot code

Equivalent circuit



Absolute Maximum Rating ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Limit	Unit
Drain-source voltage	V_{DS}	100	V
Gate-source voltage	V_{GS}	± 20	
Continuous drain current	$T_C=25^\circ\text{C}$ ⁽¹⁾	I_D	A
	$T_C=100^\circ\text{C}$	310 230	
Pulsed drain current ⁽²⁾	$I_{D,pulse}$	1200	
Avalanche energy, single pulse ⁽³⁾	E_{AS}	1450	mJ
Power dissipation	$T_C=25^\circ\text{C}$	P_D	313 W
Operating junction and storage temperature range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

Thermal Characteristic ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Max.	Unit
Thermal resistance, junction-to-case	$R_{\theta JC}$	0.4	$^\circ\text{C/W}$
Thermal resistance, junction-to-ambient ⁽⁴⁾	$R_{\theta JA}$	40	

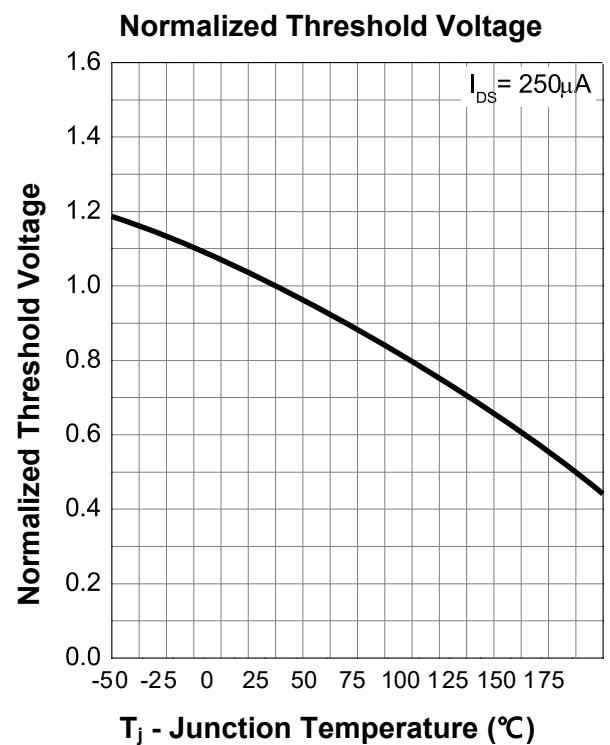
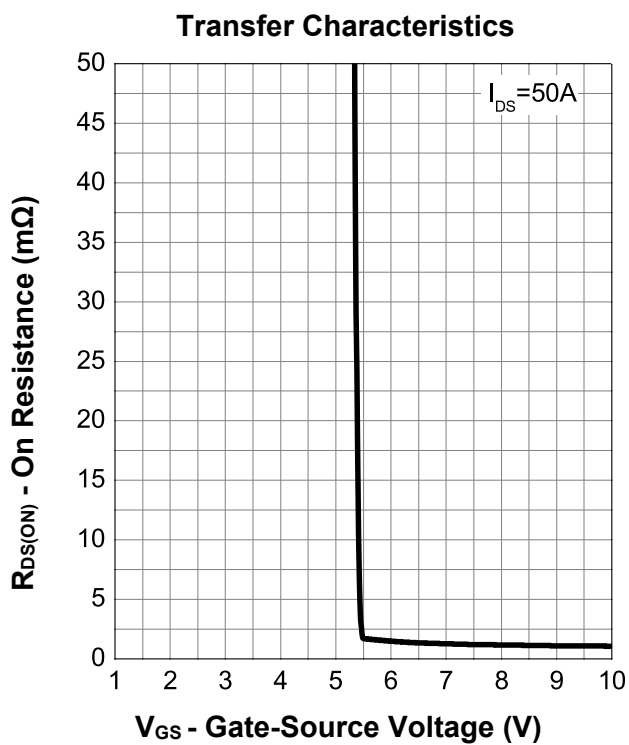
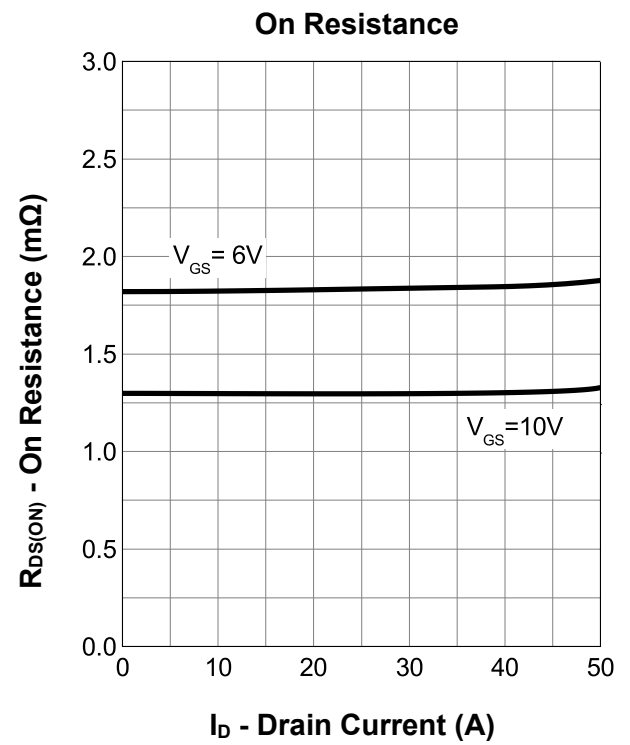
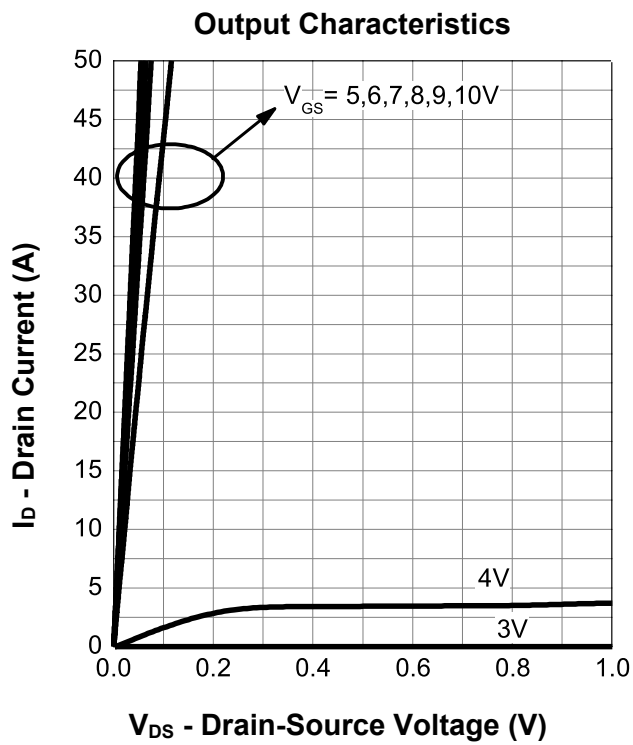
**Electrical characteristics (Ta=25°C ± 3°C)**

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Static parameter						
Drain to source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 1\text{ mA}$	100			V
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	2.2	3	3.8	V
Gate-body leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}$			1	μA
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 100\text{ A}$		1.45	1.6	m Ω
Forward transconductance ⁽⁵⁾	g_{fs}	$V_{DS} = 5\text{ V}, I_D = 100\text{ A}$		260		S
Gate resistance	R_g	$f = 1\text{ MHz}, \text{open drain}$		1		Ω
Dynamic ⁽⁵⁾						
Total gate charge	Q_g	$V_{DS} = 50\text{ V}, I_D = 100\text{ A}, V_{GS} = 10\text{ V}$		180		nC
Gate-source charge	Q_{gs}			52		
Gate-drain charge	Q_{gd}			57		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 50\text{ V}, I_D = 100\text{ A}, V_{GS} = 10\text{ V},$ $R_{GEN} = 6\text{ }\Omega$		46		ns
Rise time	t_r			95		
Turn-off delay time	$t_{d(off)}$			186		
Fall time	t_f			124		
Input capacitance	C_{iss}	$V_{DS} = 50\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$		10000		pF
Output capacitance	C_{oss}			2300		
Reverse transfer capacitance	C_{rss}			87		
Reverse Diode Characteristics(5)						
Diode forward voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_F = 100\text{ A}$		0.8	1.2	V
Reverse recovery time	t_{rr}	$V_{DS} = 50\text{ V}, I_F = 100\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		126		ns
Reverse recovery charge	Q_{rr}			327		nC

Notes

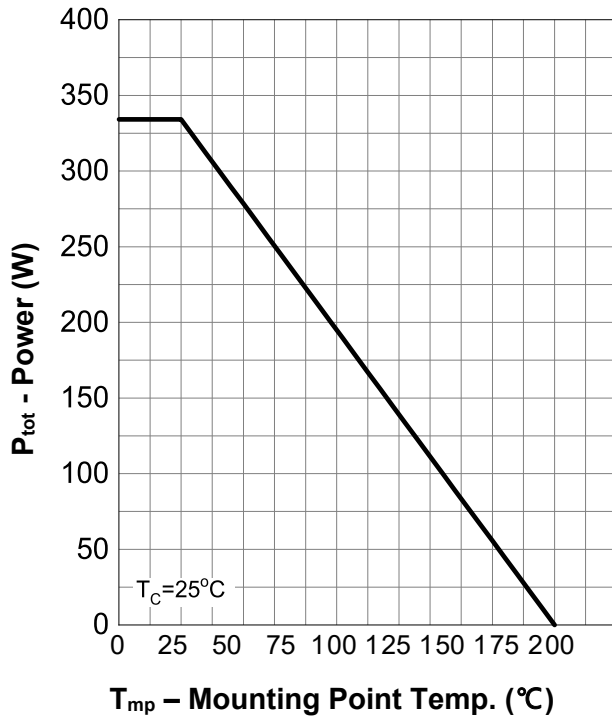
- (1) Package limited.
- (2) Pulse width limited by maximum junction temperature.
- (3) $V_{DD} = 75\text{ V}, V_{GS} = 10\text{ V}, L = 0.3\text{ mH}$.
- (4) $R_{\theta JA}$ is determined with the device mounted on a 1 in² pad 2 oz copper pad on a 1.5x1.5 in. board of FR-4 material.
- (5) Guaranteed by design, not subject to production testing.

Electrical characteristics diagrams

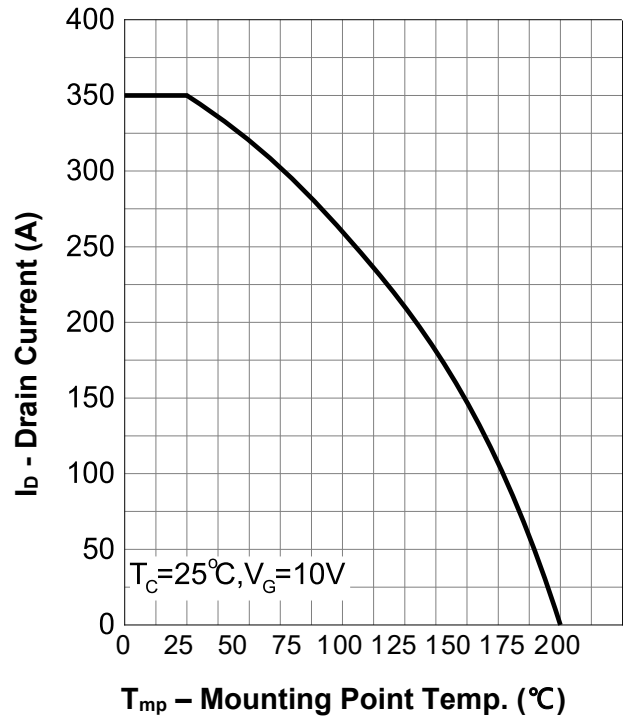


Electrical characteristics diagrams

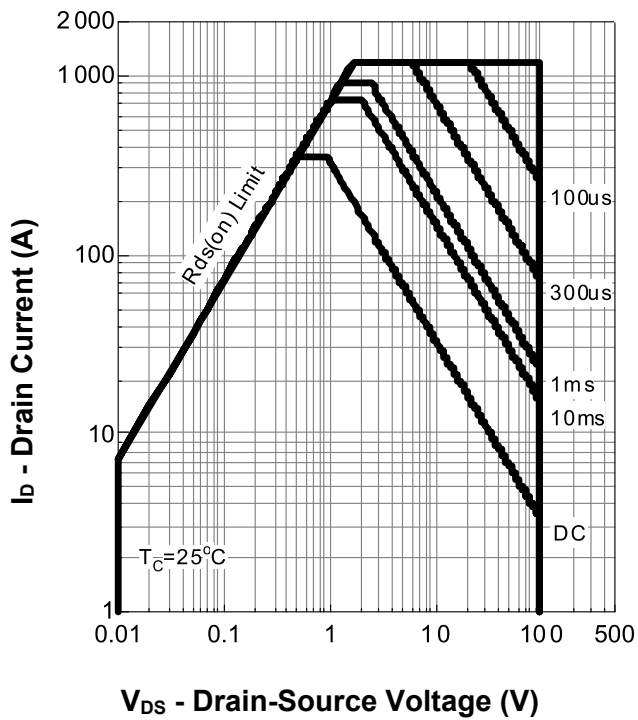
Power Capability



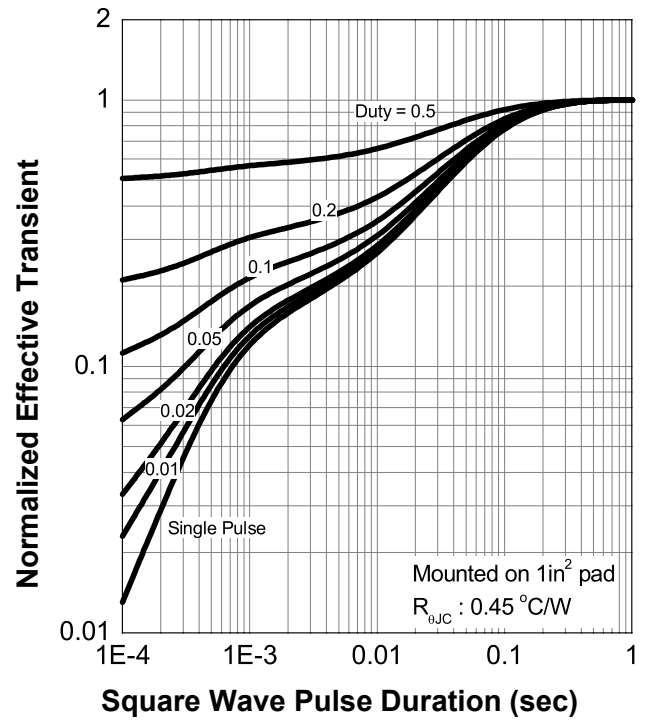
Current Capability



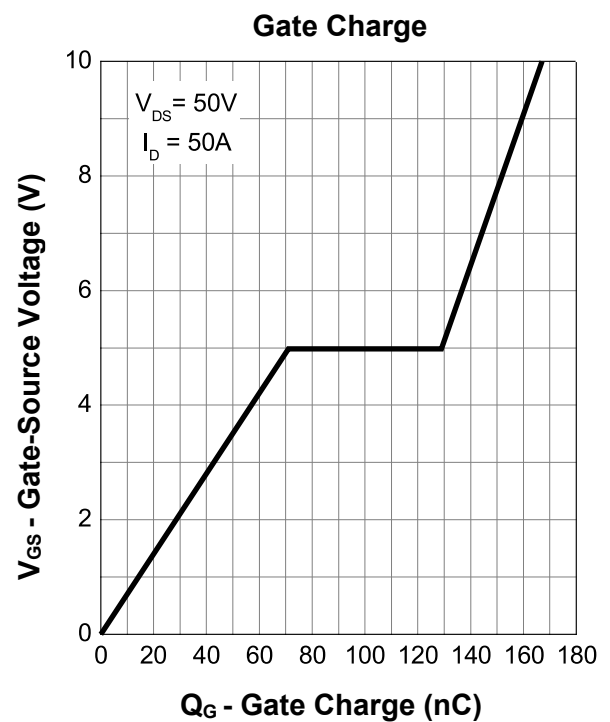
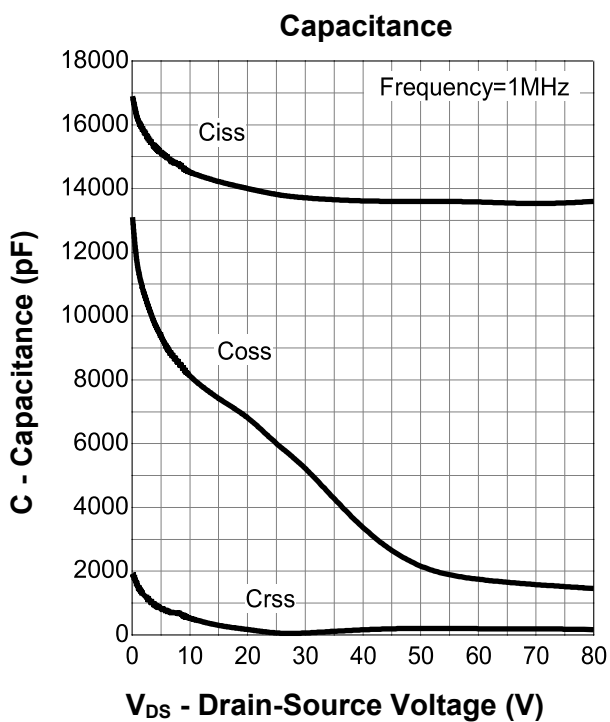
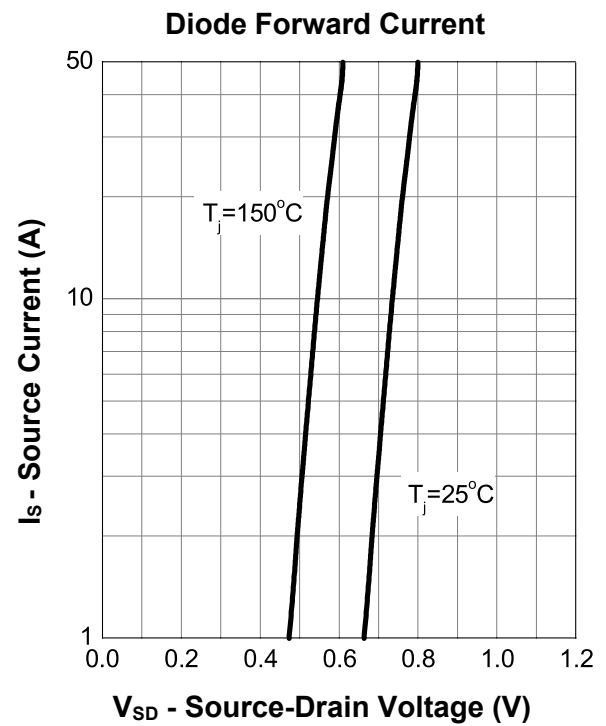
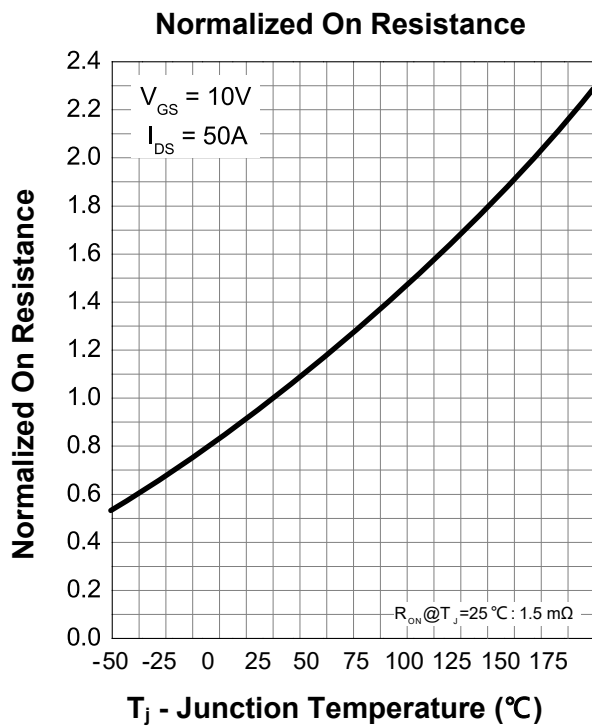
Safe Operating Area

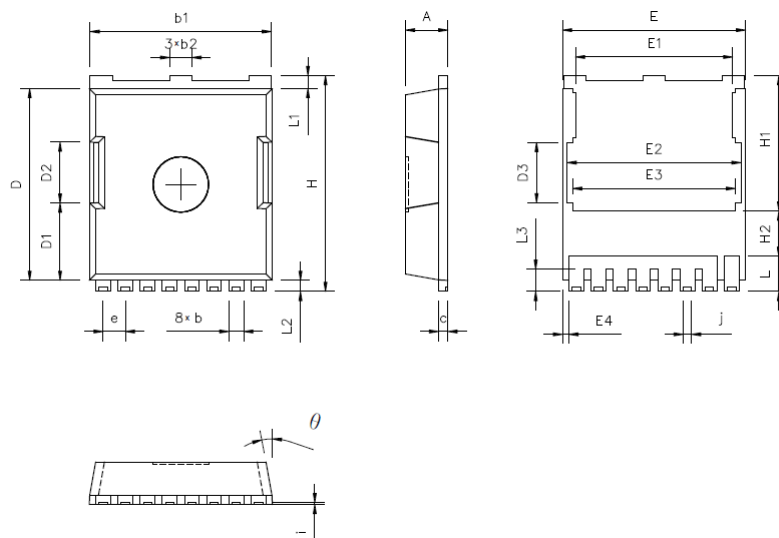


Transient Thermal Impedance



Electrical characteristics diagrams



Package outline dimensions: TOLL


Dim	Millimeters		
	Min	Nom	Max
A	2.20	-	2.40
b	0.70	-	0.90
b1	9.70	-	9.90
b2	1.20 REF		
c	0.40	-	0.60
D	10.28	-	10.48
D1	4.08	-	4.28
D2	3.20	-	3.40
D3	3.16	-	3.36
E	9.80	-	10.00
E1	8.40	-	8.60
E2	9.30	-	9.50
E3	8.80 REF		
E4	0.25	-	0.45
e	1.20 BASIC		
H	11.58	-	11.78
H1	7.23	-	7.43
H2	2.45 REF		
i	0.10	-	-
j	0.45 REF		
L	1.60	-	2.10
L1	0.60	-	0.80
L2	0.50	-	0.70
L3	1.05	-	1.30
θ	10° REF		

Important Notice

The information given in this document shall be for illustrative purposes only and shall in no event be regarded as a guarantee of conditions or characteristics. Gostone reserves the right to change any information herein. With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Gostone or its affiliates hereby make no representation or warranty of any kind, expressed or implied, as to any information provided hereunder, including without limitation as to the accuracy, completeness or non-infringement of intellectual property rights of any third party, and they assume no liability for the consequences of use of such information. In addition, any information given in this document is subject to customer's compliance with its obligations stated herein and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of Gostone in customer's applications. The information contained herein is exclusively intended for technically trained staff. No license is granted by implication under any patent right, copyright, mask work right, or other intellectual property right. It is customer's sole responsibility to evaluate the suitability of the product for the intended application and the completeness of the product information given herein with respect to such application. In no event shall Gostone or its affiliates be liable to any party for any direct, indirect, special, punitive, incidental or consequential damages of any nature whatsoever, including but not limited to loss of profits and loss of goodwill, whether or not such damages are based on tort or negligence, warranty, breach of contract or any other legal theory. In addition, any recipient of this document and the relevant products samples may not alter, decompile, disassemble, reverse engineer, or otherwise modify any information/samples received hereunder. Any intellectual property rights arising from the reverse engineering of Gostone's products shall belong to Gostone.