

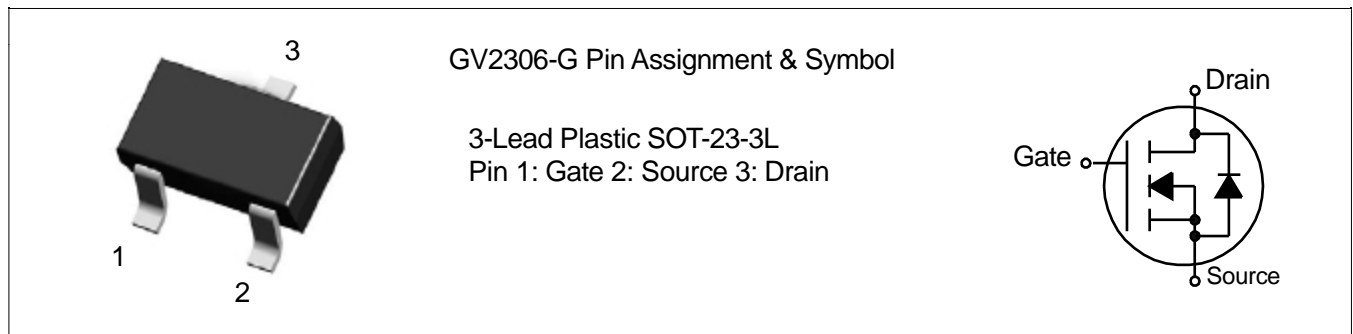
N-Channel Enhancement-Mode MOSFET (20V, 6A)

PRODUCT SUMMARY

V _{DSS}	ID	R _{DS(on)} (m-ohm) Max
20	6	12.5 @ V _{GS} = 4.5V, I _D =6A
		15.5 @ V _{GS} = 2.5V, I _D =4.0A

Features

- Super high dense cell trench design for low R_{DS(on)}.
- Rugged and reliable.
- SOT-23-3L package
- Ordering information : GV2306-G (Lead (Pb) -free and halogen-free)



Absolute Maximum Ratings (T_A=25°C, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V _{DS}	Drain-Source Voltage	20	V
V _{GS}	Gate-Source Voltage	±12	V
I _D	Drain Current (Continuous)	6	A
I _{DM}	Drain Current (Pulsed)	24	A
I _S	Drain-Source Diode Forward Current ^a	1.7	A
P _D	Total Power Dissipation @T _A =25 °C	1.25	W
T _j , T _{stg}	Operating Junction and Storage Temperature Range	-55 to +150	°C
R _{JA}	Thermal Resistance Junction to Ambient	100	°C/W

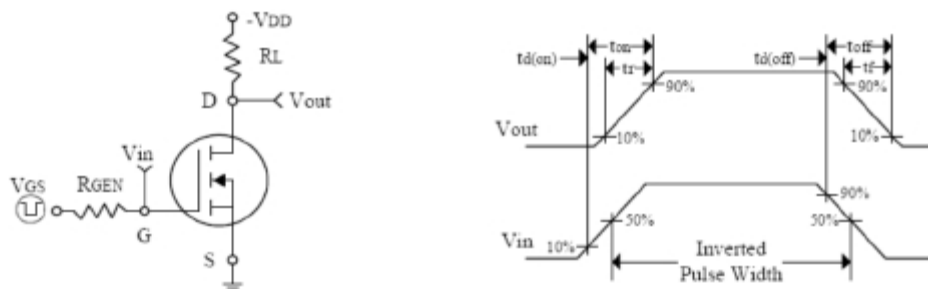
a: Surface Mounted on FR4 Board , t ≤ 5sec .

Electrical Characteristics (T_A=25°C, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V	-	-	1	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
On Characteristics^c						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.70	-	1.40	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =6.0A	-	11	12.5	mΩ
		V _{GS} =2.5V, I _D =4.0A	-	14	15.5	
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =5.0A	-	11	-	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	1140	-	PF
C _{oss}	Output Capacitance		-	165	-	
C _{rss}	Reverse Transfer Capacitance		-	110	-	
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =15V, I _D =6A, V _{GS} =4.5V	-	12.5	-	nC
Q _{gs}	Gate-Source Charge		-	1.2	-	
Q _{gd}	Gate-Drain Charge		-	2.7	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} =10V, R _L =15Ω, I _D =6A, V _{GEN} =4.5V, R _G =6Ω	-	2.5	-	nS
t _r	Turn-on Rise Time		-	3	-	
t _{d(off)}	Turn-off Delay Time		-	37	-	
t _f	Turn-off Fall Time		-	7	-	
Drain-Source Diode Characteristics						
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =2.5A	-	-	1.0	V

Note:

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



Switching Test Circuit and Switching Waveforms

Characteristics Curve

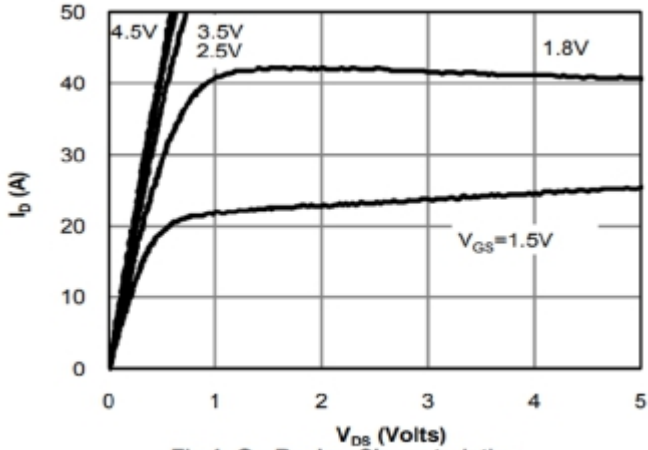


Fig 1: On-Region Characteristics

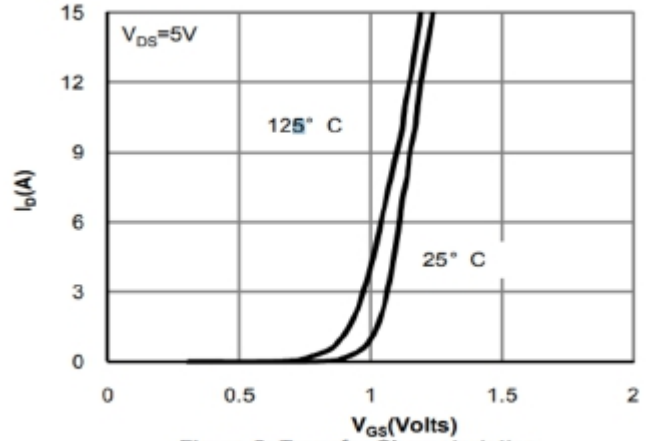


Figure 2: Transfer Characteristics

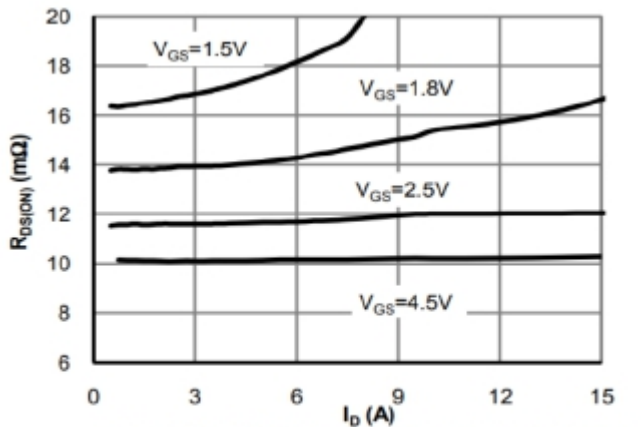


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

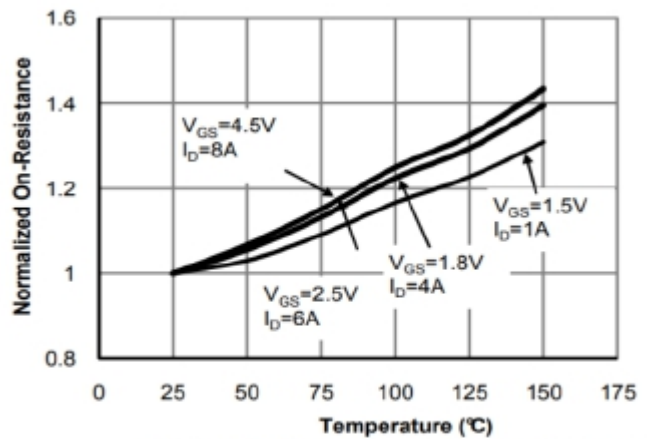


Figure 4: On-Resistance vs. Junction Temperature

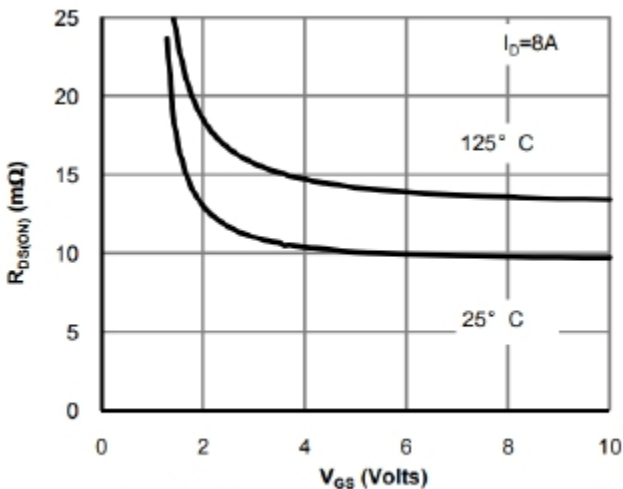


Figure 5: On-Resistance vs. Gate-Source Voltage

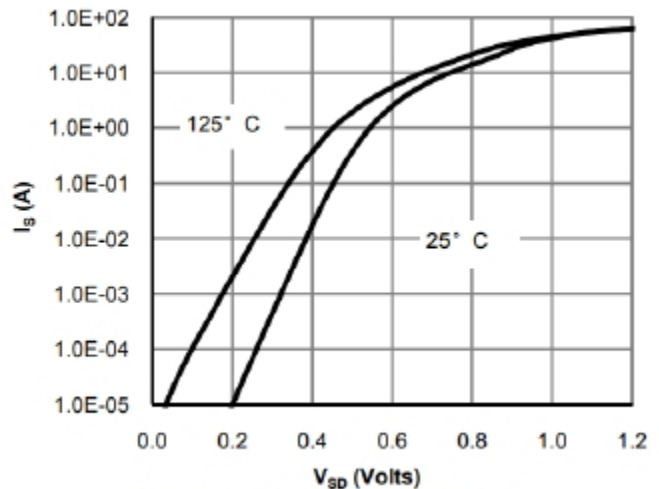


Figure 6: Body-Diode Characteristics

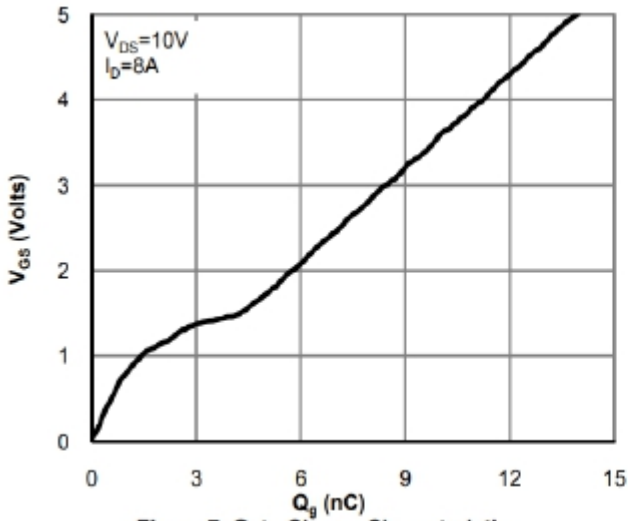


Figure 7: Gate-Charge Characteristics

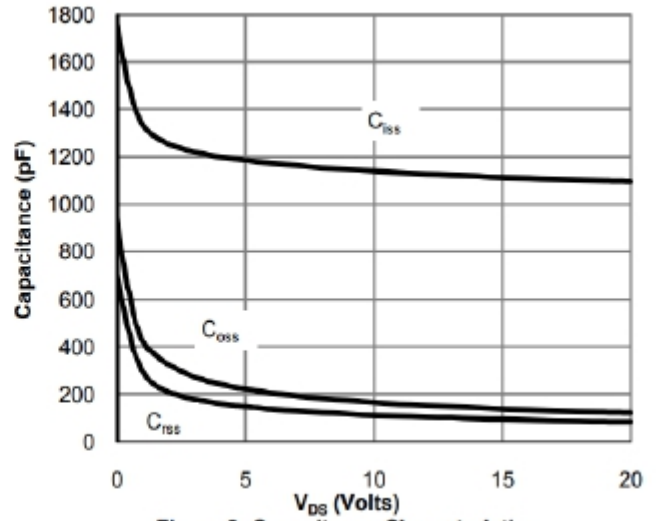


Figure 8: Capacitance Characteristics

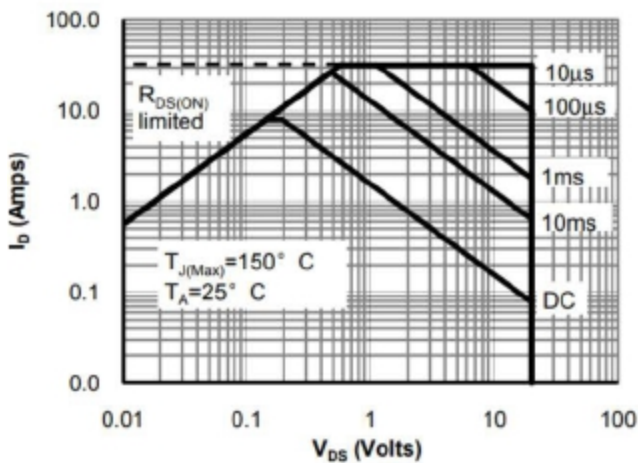


Figure 9: Maximum Forward Biased Safe Operating Area

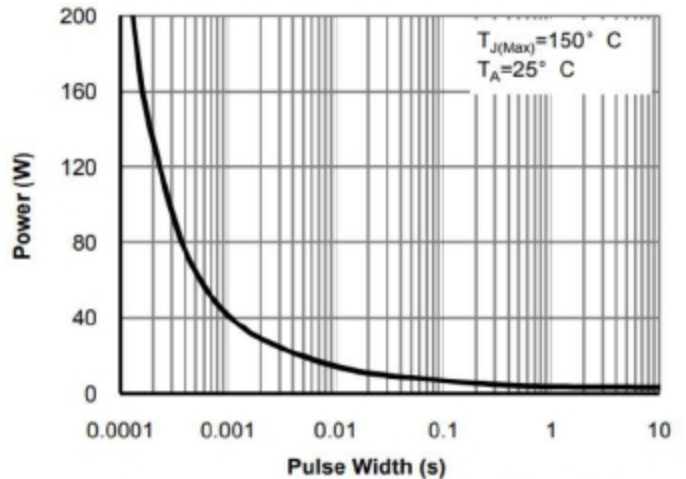


Figure 10: Single Pulse Power Rating Junction-to-Ambient

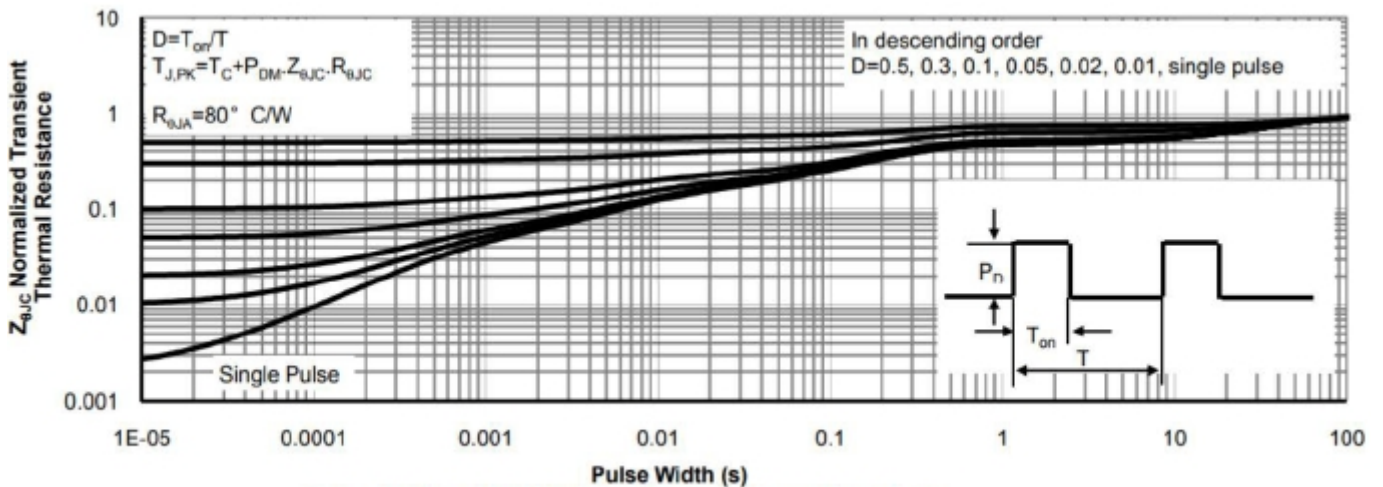
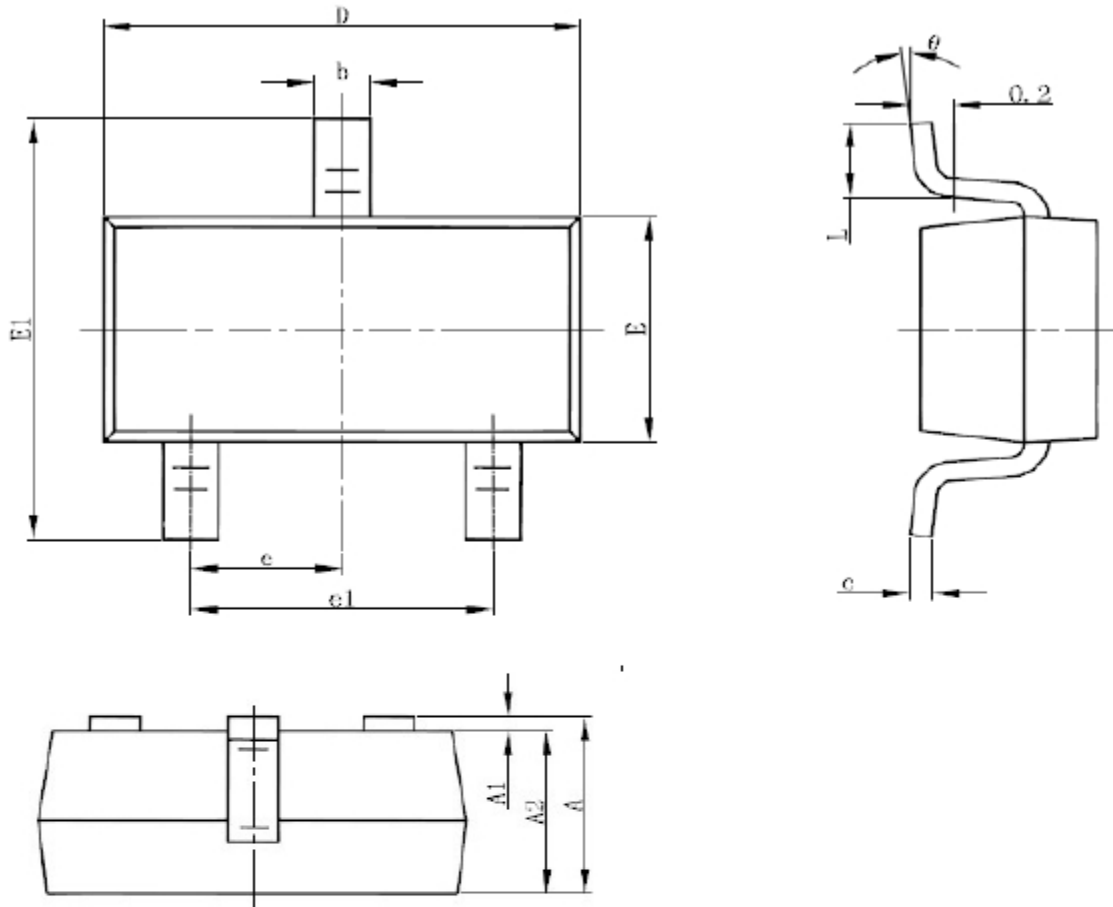


Figure 11: Normalized Maximum Transient Thermal Impedance

SOT-23-3L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.850	1.250	0.033	0.049
A1	0.000	0.100	0.000	0.004
A2	0.7	1.150	0.028	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
theta	0°	8°	0°	8°



Notice

1. Specification of the products displayed herein is subject to change without notice. Continuous development may necessitate changes in technical data without notice. GEMMICRO or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

2. Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.