

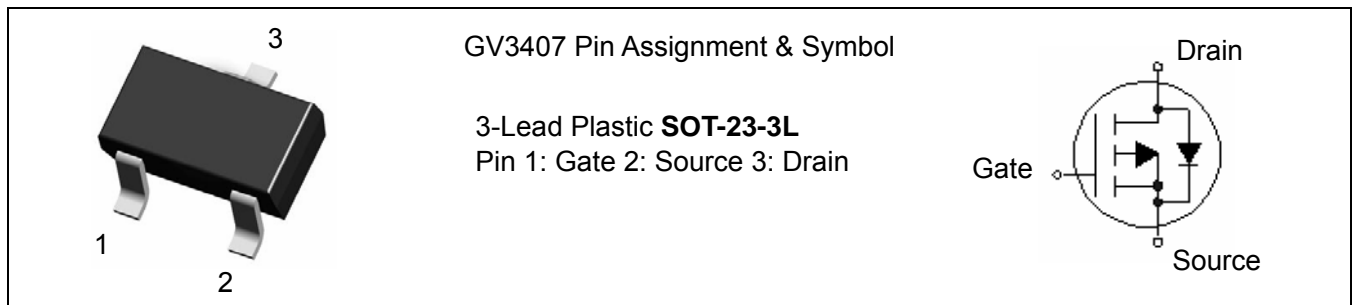
P-Channel Enhancement-Mode MOSFET (-30V, -4.3A)

PRODUCT SUMMARY

V_{DS}	I_D	$R_{DS(on)}$ (m-ohm) Max
-30V	-4.3A	60 @ $V_{GS} = -10V, I_D = -4.3A$
		78 @ $V_{GS} = -4.5V, I_D = -3.0A$

Features

- Super high dense cell trench design for low $R_{DS(on)}$.
- Rugged and reliable.
- SOT-23-3L package
- Ordering information : GV3407 (Lead (Pb) -free)
GV3407-G (Lead (Pb) -free and halogen-free)



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current @ $T_A=25^\circ\text{C}$ ^{1,6}	-4.3	A
	Drain Current @ $T_A=70^\circ\text{C}$ ^{1,6}	-3.5	
I_{DM}	Drain Current (Pulsed) ²	-20	A
P_D	Total Power Dissipation @ $T_A=25^\circ\text{C}$ ¹	1.4	W
	Total Power Dissipation @ $T_A=70^\circ\text{C}$ ¹	0.9	
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient (Steady-State) ¹	125	$^\circ\text{C/W}$
	Thermal Resistance Junction to Ambient ($t \leq 10\text{S}$) ^{1,6}	90	
$R_{\theta JL}$	Maximum Junction-to-Lead ³	80	$^\circ\text{C/W}$

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	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V	-	-	-1	uA
		V _{DS} =-30V, V _{GS} =0V, T _J =55°C	-	-	-5	
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
• On Characteristics^c						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-1.0	-	-2.5	V
I _{DS(on)}	On state drain current	V _{DS} =-5V, V _{GS} =-10V	-30	-	-	A
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-4.3A	-	-	60	mΩ
		V _{GS} =-10V, I _D =-4.3A, T _J =125°C	-	-	75	
		V _{GS} =-4.5V, I _D =-3.0A	-	-	78	
gfs	Forward Transconductance	V _{DS} =-5V, I _D =-4.3A	-	11	-	S
• Dynamic Characteristics^d						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	-	668	830	pF
C _{oss}	Output Capacitance					
C _{rss}	Reverse Transfer Capacitance					
R _g	Gate resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	-	6	9	Ω
• Switching Characteristics^d						
Q _g (10V)	Total Gate Charge(10V)	V _{DS} =-15V, I _D =-4.3A, V _{GS} =-10V	-	12.7	16	nC
Q _g (4.5V)	Total Gate Charge(4.5V)					
Q _{gs}	Gate-Source Charge					
Q _{gd}	Gate-Drain Charge					
t _{d(on)}	Turn-on Delay Time	V _{DS} =-15V, V _{GS} =-10V, R _L =3.5Ω, R _{GEN} =3Ω	-	7.7	-	nS
t _r	Turn-on Rise Time					
t _{d(off)}	Turn-off Delay Time					
t _f	Turn-off Fall Time					
t _{rr}	Body Diode Reverse Recovery Time	I _F =-4.3A, dI/dt=100A/us	-	22	30	nS
Q _{rr}	Body Diode Reverse Recovery Charge	I _F =-4.3A, dI/dt=100A/us	-	15	-	nC
• Drain-Source Diode Characteristics						
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =-1.0A	-	-	-1	V
I _S	Maximum Body-Diode Continuous Current		-	-	-2	A

1.The value of R_{JA} is measured with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

2.Repetitive rating, pulse width limited by junction temperature.

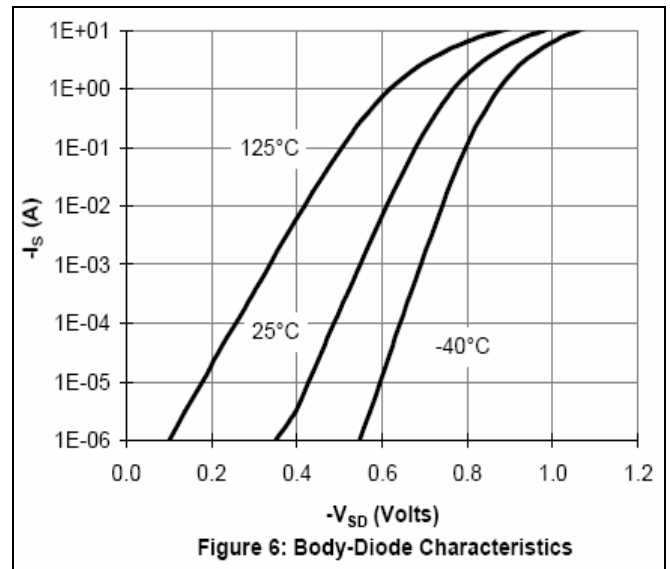
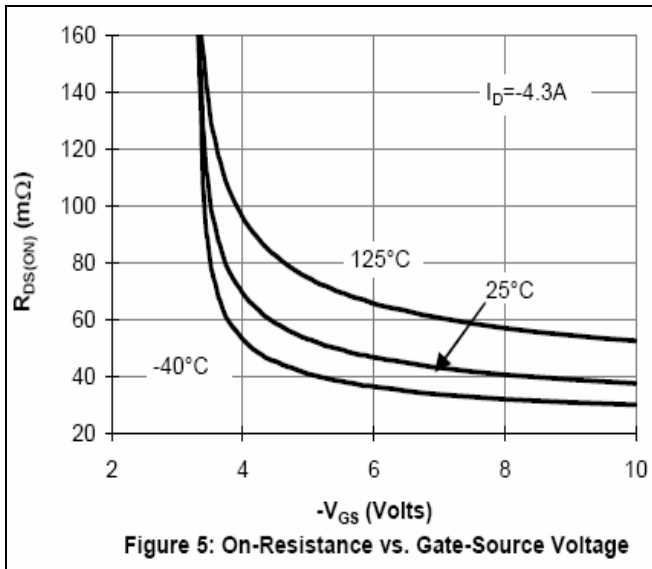
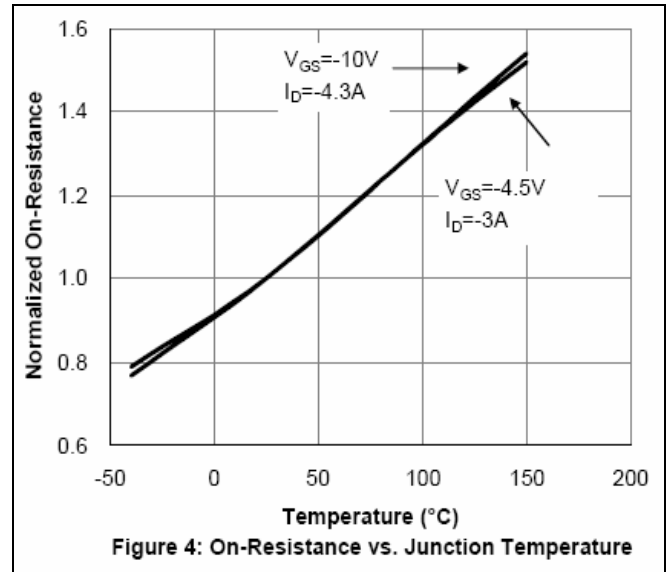
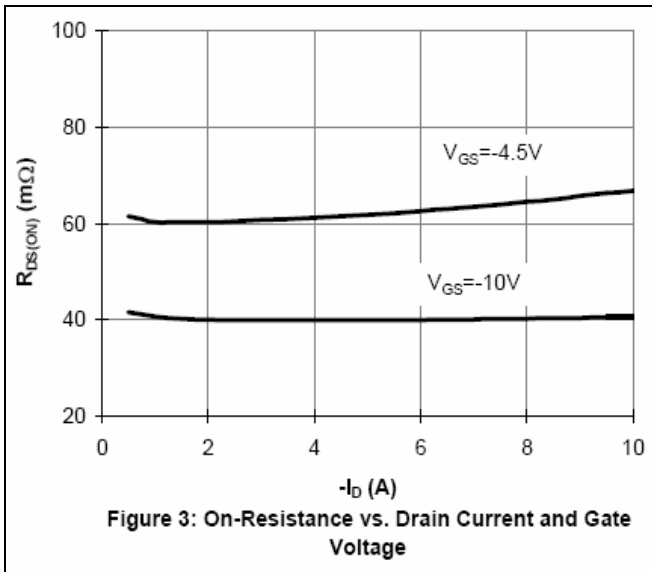
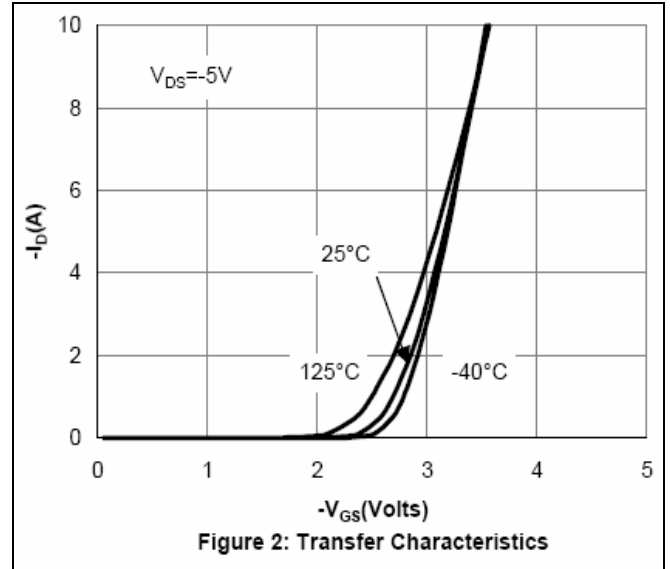
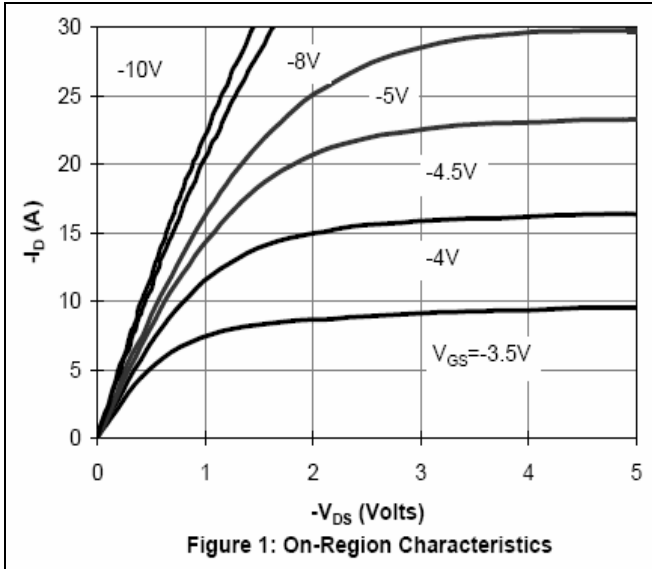
3.The R_{JA} is the sum of the thermal impedance from junction to lead R_{JL} and lead to ambient.

4.The static characteristics in Figures 1 to 6 are obtained using < 300 ns pulses, duty cycle 0.5% max.

5.These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The SOA curve provides a single pulse rating.

6.The current rating is based on the t ≤ 10s thermal resistance rating.

Characteristics Curve



Characteristics Curve

