P-Channel Enhancement Mode MOSFET

TBL1216-6L

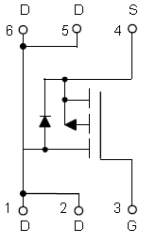
Features

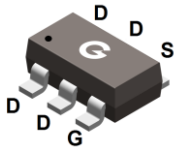
HF

- Super low gate charge
- Ultra low on-resistance
- Halogen free
- Qualified to AEC-Q101 standards for high reliability

Mechanical Data

- Case: SOT-23-6L
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208





SOT-23-6L

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TBL1216-6L	SOT-23-6L	3000 pcs / Tape & Reel	1216

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	-15	V
Gate-to-Source Voltage	V_{GSS}	±8	V
Continuous Drain Current	I_D	-8	A
Continuous Drain Current (T_A = 70°C)		-6.5	A
Pulsed Drain Current *2	I_{DM}	-20	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_A = 25°C) *3	P_D	2	W
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	62	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = -250μA	-15	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -15V, V_{GS} = 0V	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±8V, V_{DS} = 0V	-	-	±100	nA
On Characteristics *5						
$R_{DS(ON)}$	Static Drain-Source On-resistance	V_{GS} = -4.5V, I_D = -6.7A	-	-	22	mΩ
		V_{GS} = -2.5V, I_D = -6.2A	-	-	28	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -250μA	-0.4	-	-1	V
g_{FS}	Forward Tranconductance	V_{DS} = -10V, I_D = -6.7A	-	40	-	S
Dynamic Characteristics *6						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = -10V f = 1.0MHz	-	2700	-	pF
C_{OSS}	Output Capacitance		-	680	-	
C_{RSS}	Reverse Transfer Capacitance		-	590	-	
Switching Characteristics *6						
Q_G	Total Gate-Charge	V_{GS} = -4.5V V_{DD} = -6V I_D = -10A	-	35	-	nC
Q_{GS}	Gate to Source Charge		-	5	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	10	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD} = -8A, V_{GS} = 0V	-	-	-1.2	V

Notes:

1. Surface mounted on FR4 Board, t<10 sec
2. Repetitive rating : Pulse width limited by maximum junction temperature
3. This test is performed with no heat sink at T_A = 25°C
4. This test is performed with infinite heat sink at T_C = 25°C
5. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%
6. Guaranteed by design, not subject to production testing

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

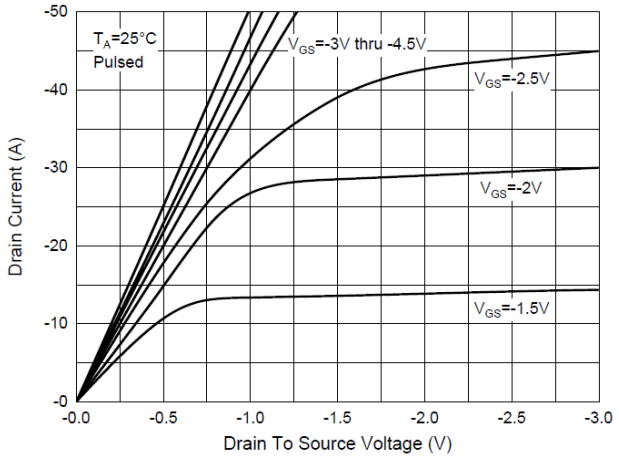


Fig 1 Output Characteristics

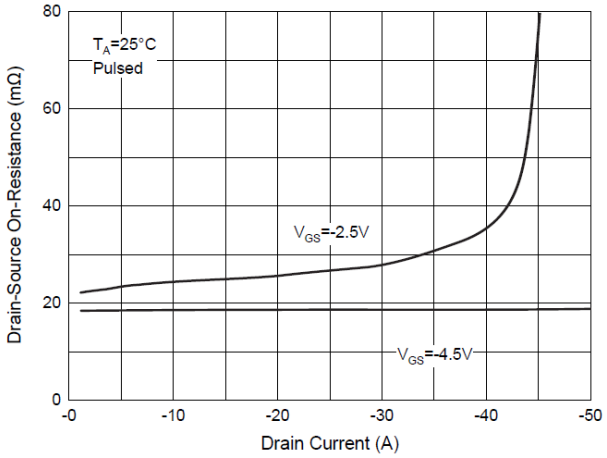


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

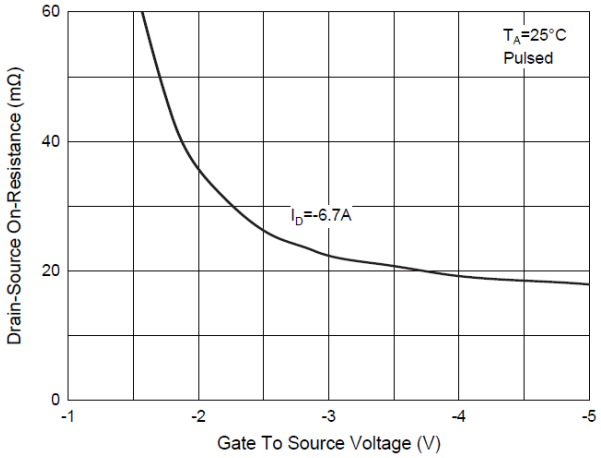


Fig 3 On-Resistance vs. Gate-Source Voltage

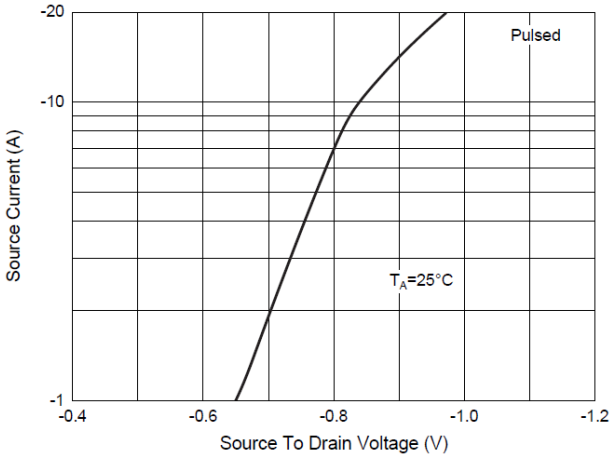


Fig 4 Body-Diode Characteristics

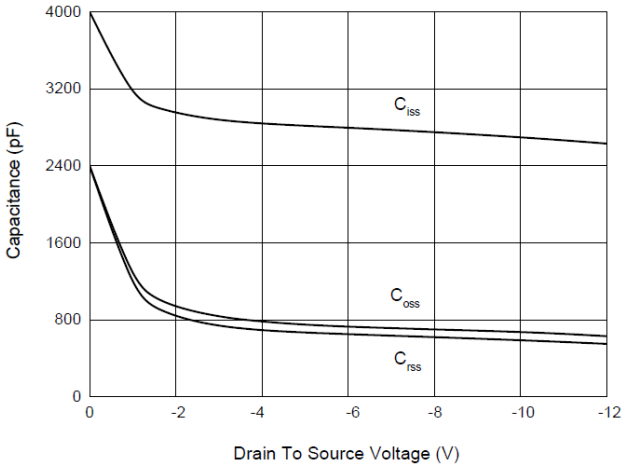


Fig 5 Capacitance Characteristics

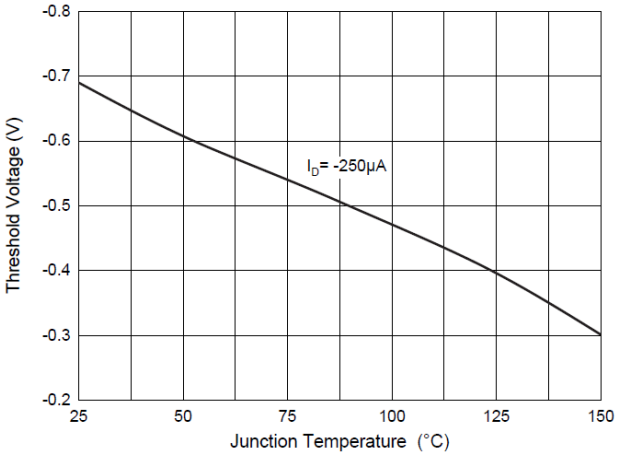
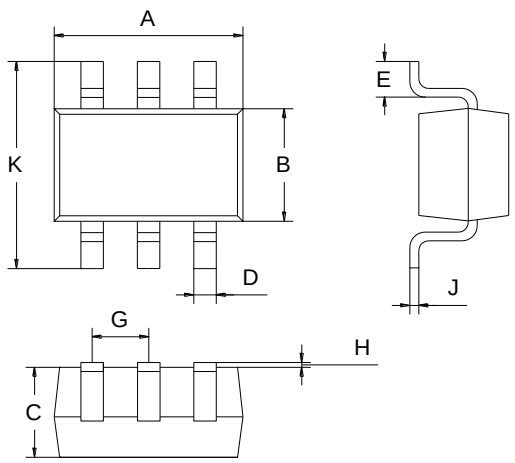


Fig 6 $V_{GS(th)}$ vs. Junction Temperature

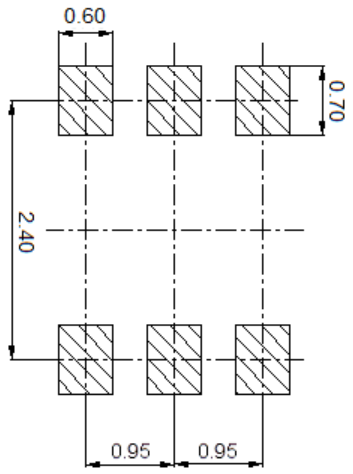
Package Outline Dimensions (Unit: mm)



SOT-23-6L		
Dimension	**Min.**	**Max.**
A	2.80	3.00
B	1.50	1.70
C	1.00	1.20
D	0.35	0.45
E	0.35	0.55
G	0.90	1.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

Mounting Pad Layout (Unit: mm)

SOT-23-6L



IMPORTANT NOTICE

Changzhou Galaxy Century Microelectronics (GME) reserves the right to make changes without further notice to any product information (copyrighted) herein to make corrections, modifications, improvements, or other changes. GME does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others.