

Features

- Low gate charge
- Simple drive requirement

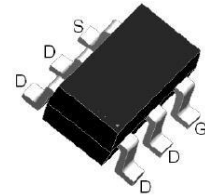
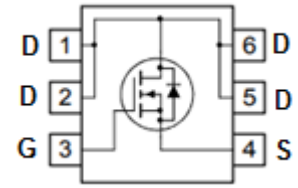
HF

Applications

- Power switching application
- Hard switching and high frequency circuits
- Uninterruptible power supply

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
BL12K0N20-6L	SOT-23-6L	3000 pcs / Tape & Reel	12K0N20

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V _{DSS}	200	V
Gate-to-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current	I _D	0.9	A
Pulsed Drain Current ^{*1}	I _{DM}	3.6	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T _A = 25°C)	P _D	1.25	W
Thermal Resistance Junction-to-Air*3	R _{θJA}	100	°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	200	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 160V, V _{GS} = 0V	-	-	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics ^{*2}						
R _{DS(ON)}	Static Drain-Source On-resistance	V _{GS} = 10V, I _D = 0.5A	-	-	1.2	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	2	-	4	V
Dynamic Characteristics						
C _{ISS}	Input Capacitance	V _{GS} = 0V	-	135	-	pF
C _{OSS}	Output Capacitance	V _{DS} = 100V	-	13	-	
C _{RSS}	Reverse Transfer Capacitance	f = 1.0MHz	-	5	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time	V _{DD} = 100V, V _{GS} = 10V R _G = 1Ω, I _D = 1A	-	4.4	-	ns
t _r	Turn-on Rise Time		-	6.6	-	
t _{d(OFF)}	Turn-Off Delay Time		-	10	-	
t _f	Turn-Off Fall Time		-	9.2	-	
Q _G	Total Gate-Charge	V _{DD} = 100V	-	4.2	-	nC
Q _{GS}	Gate to Source Charge	V _{GS} = 10V	-	1.1	-	
Q _{GD}	Gate to Drain (Miller) Charge	I _D = 0.5A	-	0.7	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage ^{*2}	I _{SD} = 1A, V _{GS} = 0V	-	-	1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%
3. Surface Mounted on 1" x 1" FR4 Board

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

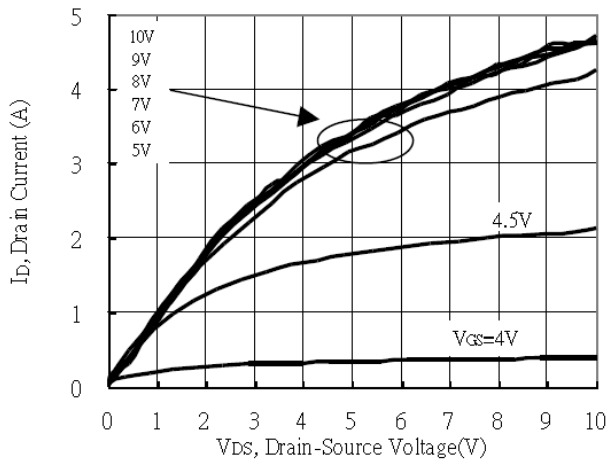


Fig 1 Typical Output Characteristics

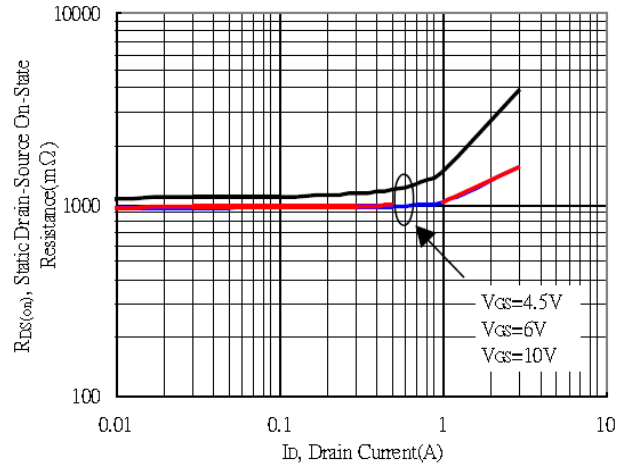


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

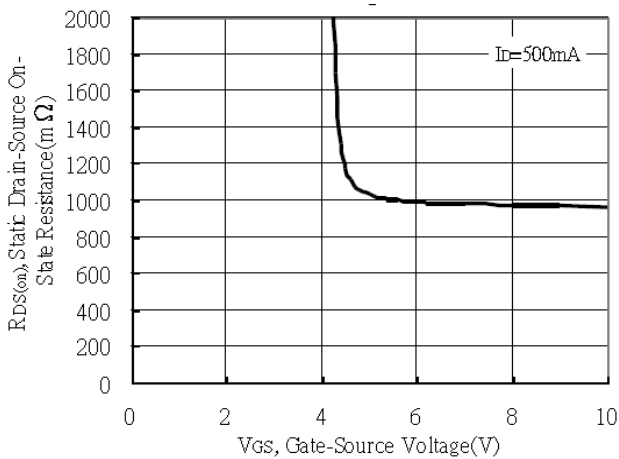


Fig 3 On-Resistance vs. Gate-Source Voltage

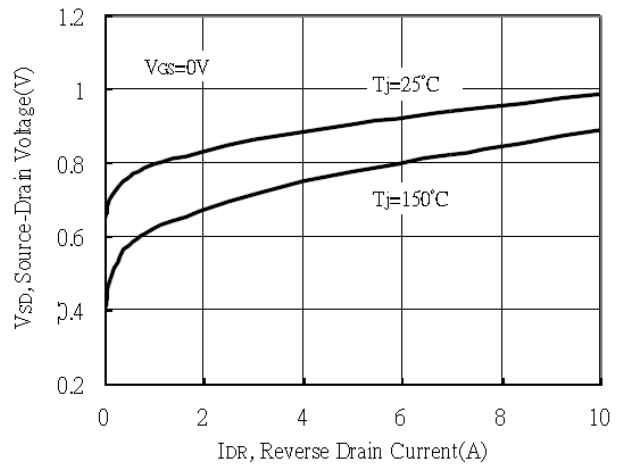


Fig 4 Body-Diode Characteristics

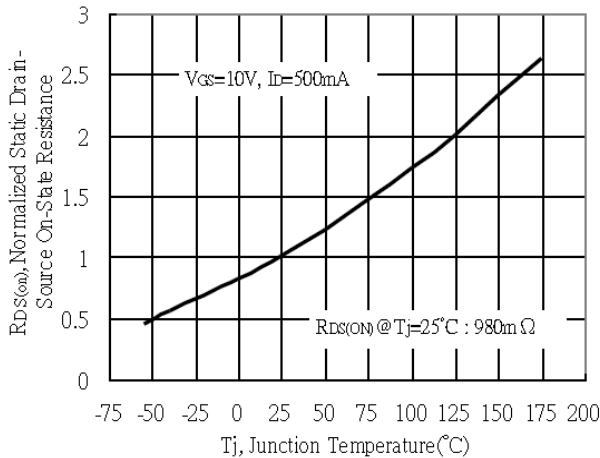


Fig 5 On-Resistance vs. Junction Temperature

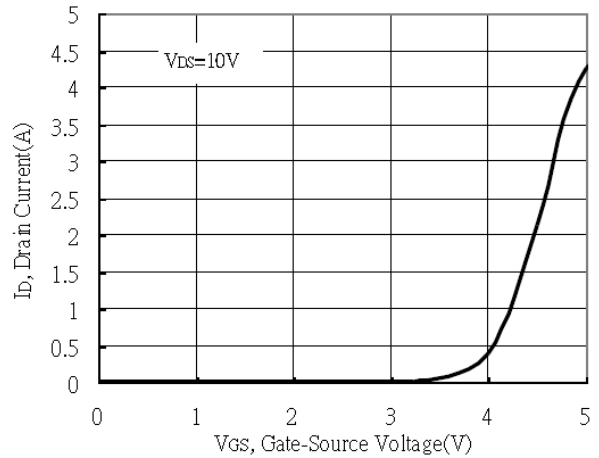


Fig 6 Transfer Characteristics

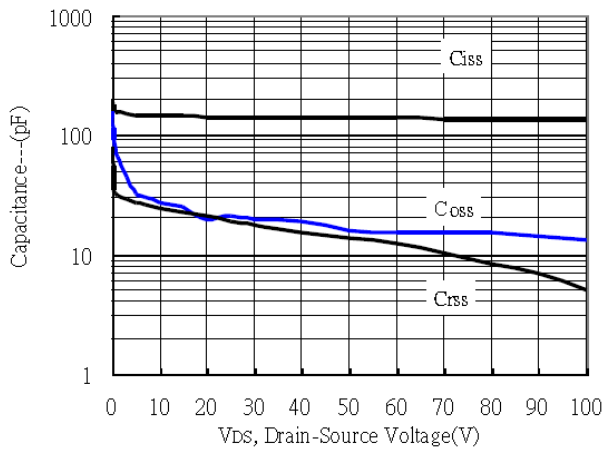


Fig 7 Capacitance Characteristics

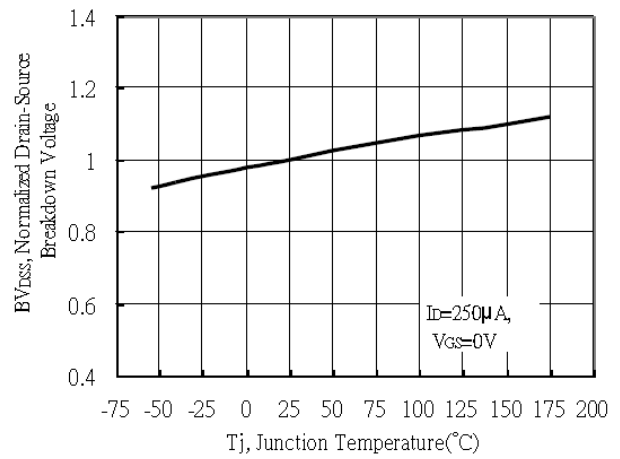


Fig 8 Drain-Source vs. Junction Temperature

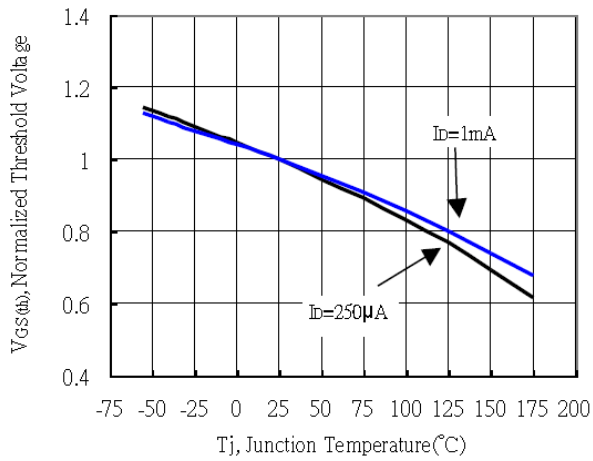


Figure 9 Gate Voltage vs. Junction Temperature

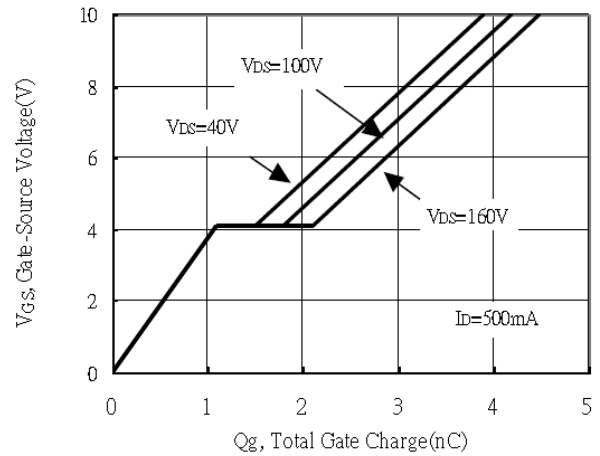
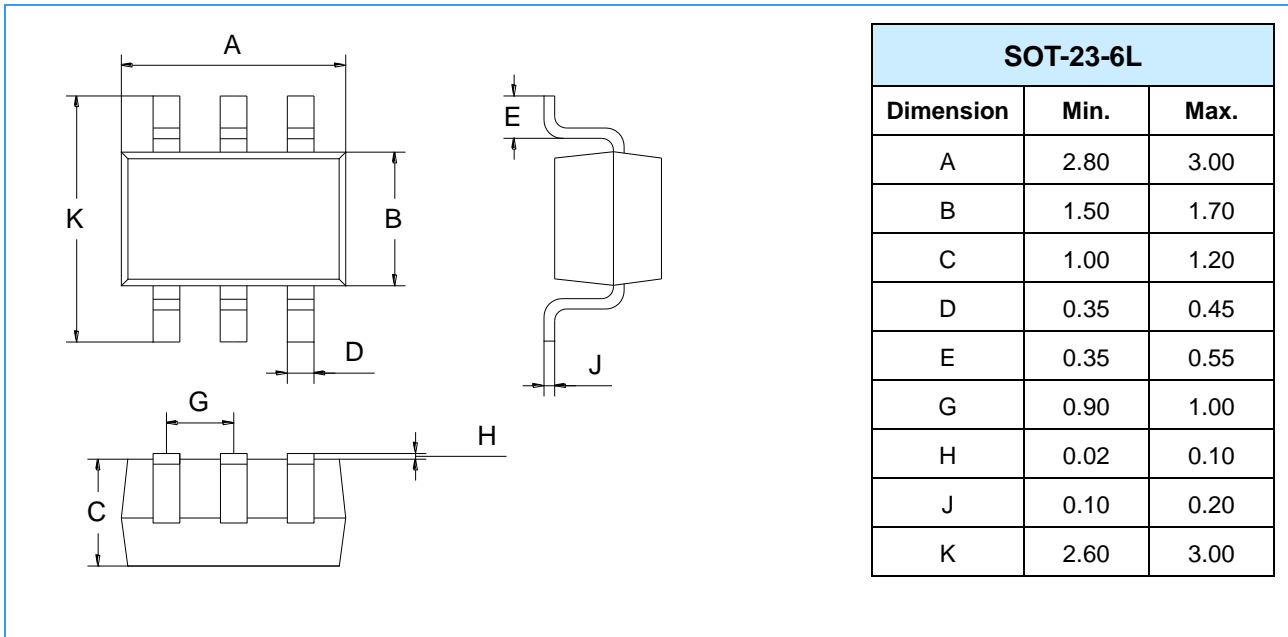
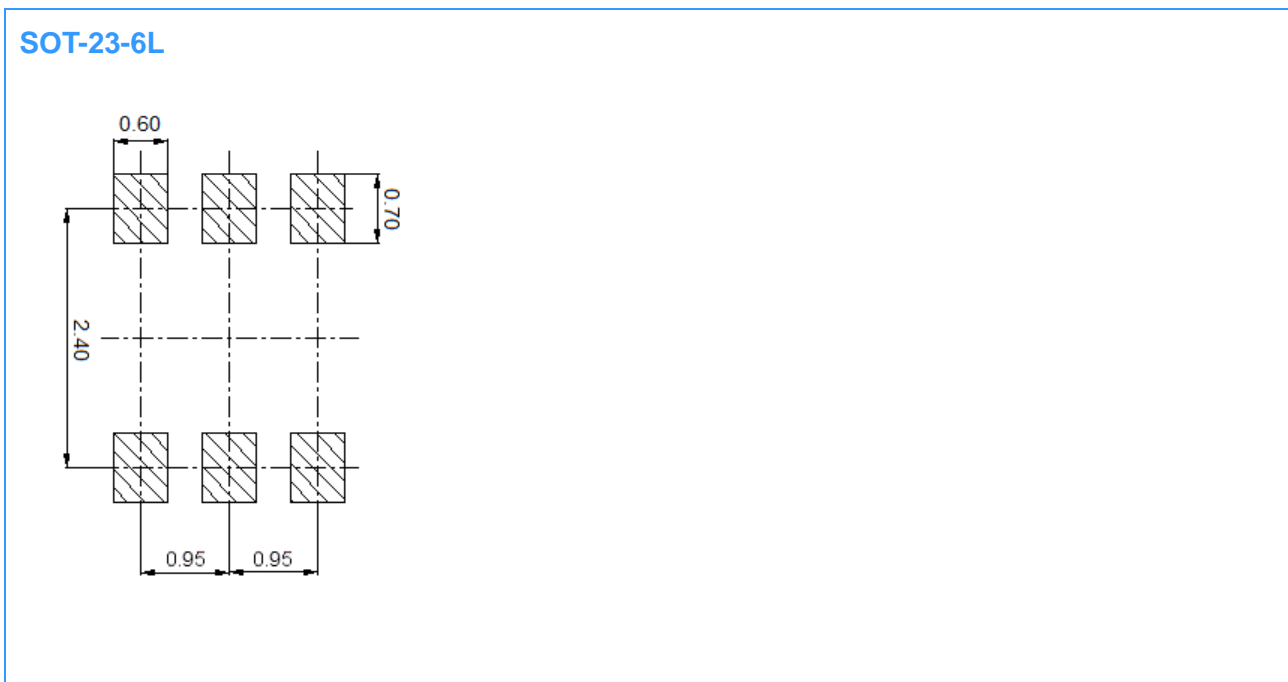


Figure 10 Gate-Charge Characteristics

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



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