

Features

- Advanced Trench technology
- Excellent $R_{DS(ON)}$ and low gate charge
- Halogen free
- Qualified to AEC-Q101 standards for high reliability

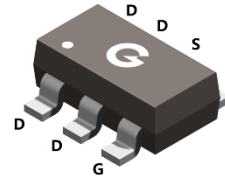
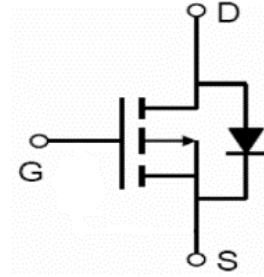
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Typical Applications

- PWM applications
- Power management functions
- Load switch

Mechanical Data

- Case: SOT-23-6L
- Molding Compound, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Plated Leads, Solderable Per MIL-STD-202, Method 208



SOT-23-6L

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TBL350P04-6L	SOT-23-6L	3000 pcs / Tape & Reel	350P04

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	-40	V
Gate-to-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current ($T_A = 25^\circ\text{C}$) * ¹	I_D	-5.2	A
Continuous Drain Current ($T_A = 70^\circ\text{C}$) * ¹		-4.2	A
Pulsed Drain Current* ¹	I_{DM}	-26	A
Single Pulse Avalanche Energy * ³	E_{AS}	20	mJ
Power Dissipation ($T_A = 25^\circ\text{C}$) * ¹	P_D	1.6	W
Operating Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance Junction-to-Air * ¹	$R_{\theta JA}$	-	-	80	$^\circ\text{C/W}$

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ 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	-40	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -40V, V _{GS} = 0V	-	-	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
R _{DS(ON)}	Drain-Source On-resistance *2	V _{GS} = -10V, I _D = -5A	-	-	35	mΩ
		V _{GS} = -4.5V, I _D = -3A	-	-	50	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.5	-2.5	V
Dynamic Characteristics						
C _{ISS}	Input Capacitance	V _{GS} = 0V V _{DS} = -20V f = 1.0MHz	-	1350	-	pF
C _{OSS}	Output Capacitance		-	123	-	
C _{RSS}	Reverse Transfer Capacitance		-	105	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time *4	V _{DD} = -20V V _{GS} = -10V R _G = 25Ω I _D = -5A	-	8	-	ns
t _r	Turn-on Rise Time *4		-	15	-	
t _{d(OFF)}	Turn-Off Delay Time *4		-	23	-	
t _f	Turn-Off Fall Time *4		-	9	-	
Q _G	Total Gate-Charge	V _{DD} = -20V I _D = -5A V _{GS} = -10V	-	20	-	nC
Q _{GS}	Gate to Source Charge		-	3.5	-	
Q _{GD}	Gate to Drain (Miller) Charge		-	4.2	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage *2	I _{SD} = -5A, V _{GS} = 0V	-	-0.9	-1.2	V
t _{rr}	Reverse Recovery Time	I _S = -5A, V _{GS} = 0V di/dt=100A/μs	-	29	-	ns
Q _{rr}	Reverse Recovery Charge		-	20	-	nC

Notes:

- 1、The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper
- 2、The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3、The E_{AS} data shows Max. rating. The test condition is $V_{DD} = -20V, V_{GS} = -10V, L = 0.5mH$
- 4、Guaranteed by design, not subject to production testing

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

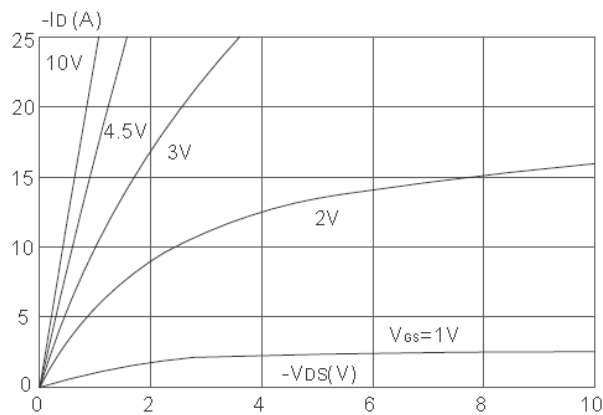
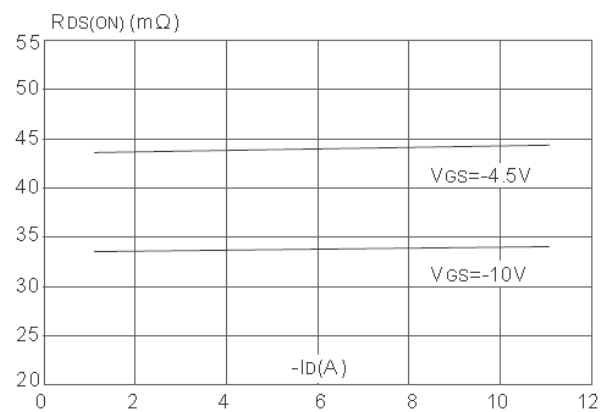
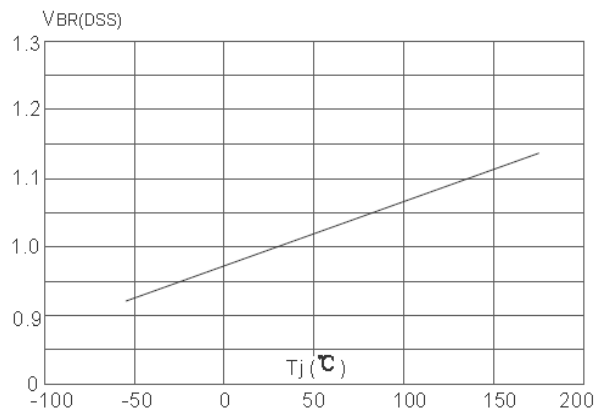


Fig 1 Typical Output Characteristics



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



**Fig 3 Normalized Breakdown Voltage
vs. Junction Temperature**

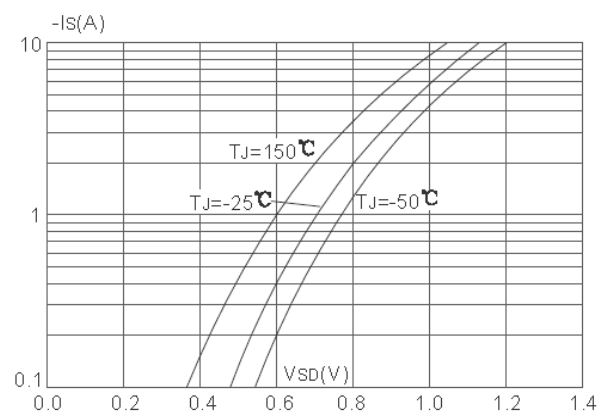
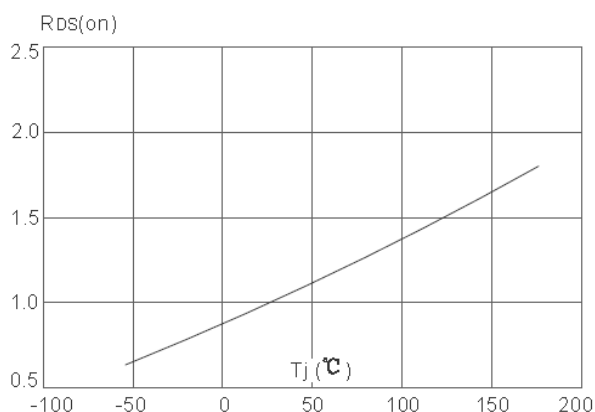


Fig 4 Body-Diode Characteristics



**Fig 5 Normalized On-Resistance vs. Junction
Temperature**

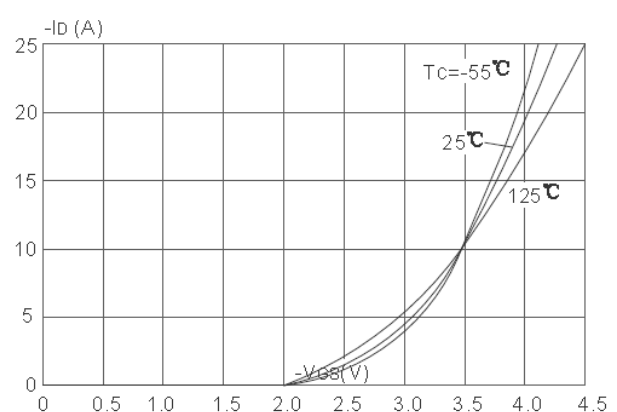
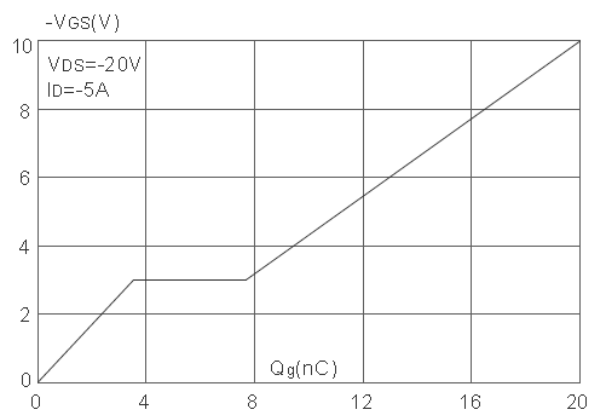
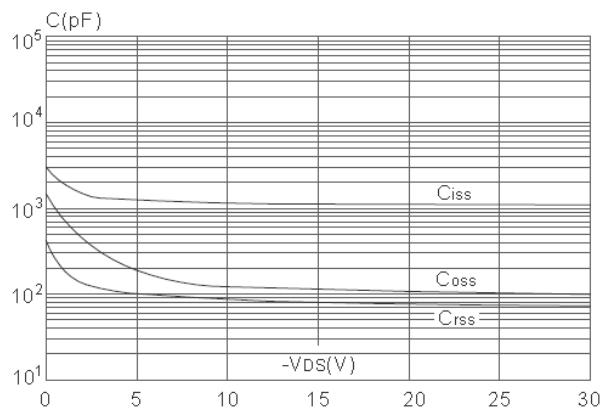
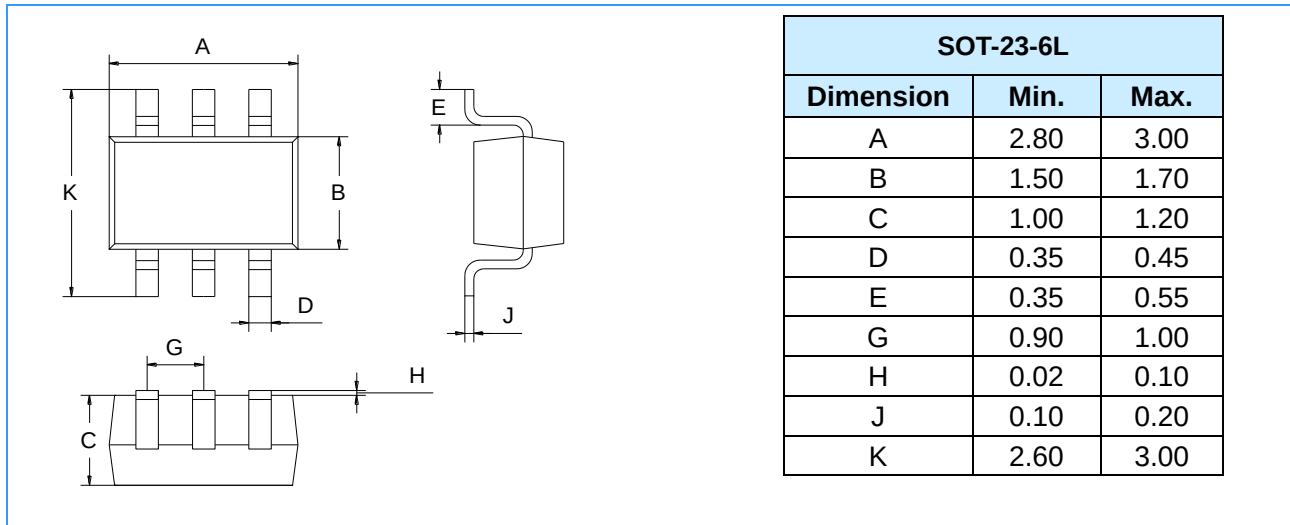


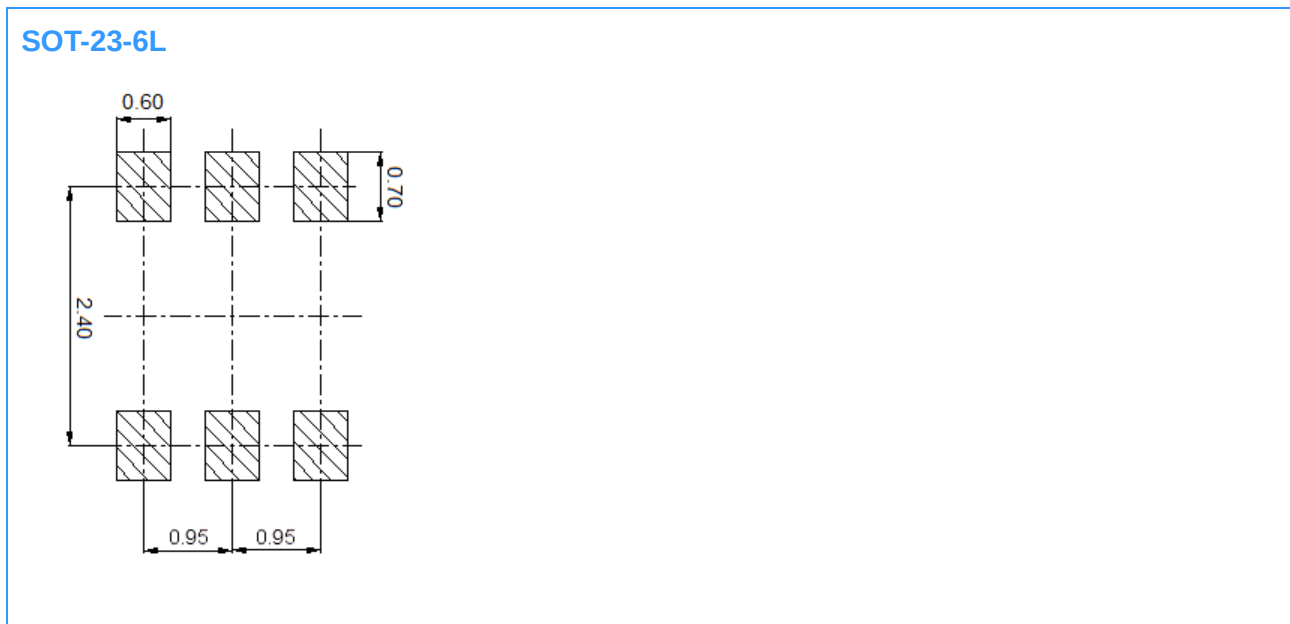
Fig 6 Transfer Characteristics



Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



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