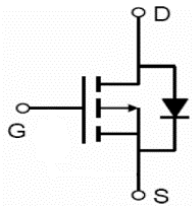
P-Channel Enhancement Mode MOSFET

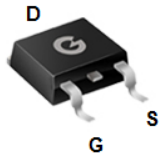
TBL900P06D

Features

HF

- Super low gate charge
- Excellent C_{dv}/d_t effect decline
- Advanced high cell density Trench technology
- Halogen free
- Qualified to AEC-Q101 standards for high reliability





TO-252

Mechanical Data

- Case: TO-252
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TBL900P06D	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	900P06D

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	-60	V
Gate-to-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	-18	A
Pulsed Drain Current	I_{DM}	-64	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_C = 25°C)	P_D	57	W
Thermal Resistance Junction-to-Case *1	$R_{\theta JC}$	2.2	°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	-60	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -48V, V_{GS} = 0V, T_C = 25°C	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±20V, V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance *2	V_{GS} = -10V, I_D = -5A	-	-	90	mΩ
		V_{GS} = -4.5V, I_D = -3A	-	-	115	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -250μA	-1	-	-2.5	V
Dynamic Characteristics						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = -15V f = 1.0MHz	-	1080	-	pF
C_{OSS}	Output Capacitance		-	73	-	
C_{RSS}	Reverse Transfer Capacitance		-	50	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	V_{DS} = -15V, R_L=15 Ω V_{GS} = -10V, R_G = 3.3Ω I_D = -1A	-	8.8	-	ns
t_r	Turn-on Rise Time		-	19.6	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	47.2	-	
t_f	Turn-Off Fall Time		-	9.6	-	
Q_G	Total Gate-Charge	V_{GS} = -4.5V V_{DS} = -20V I_D = -2A	-	11.8	-	nC
Q_{GS}	Gate to Source Charge		-	1.9	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	6.5	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD} = -1.7A, V_{GS} = 0V	-	-	-1.2	V
I_{SD}	Source-Drain Current(Body Diode)		-	-	-6	A

Notes:

1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper
2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%

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

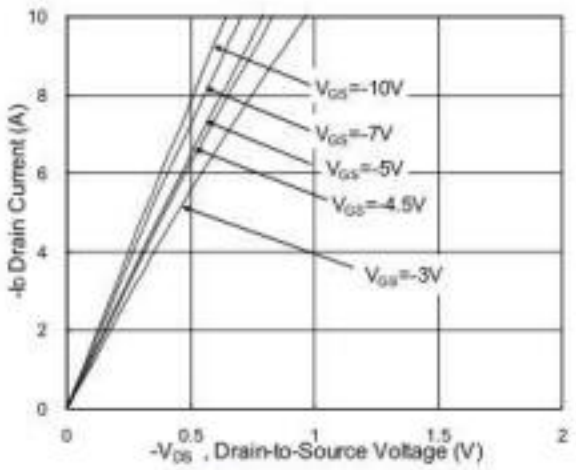


Fig.1 Typical Output Characteristics

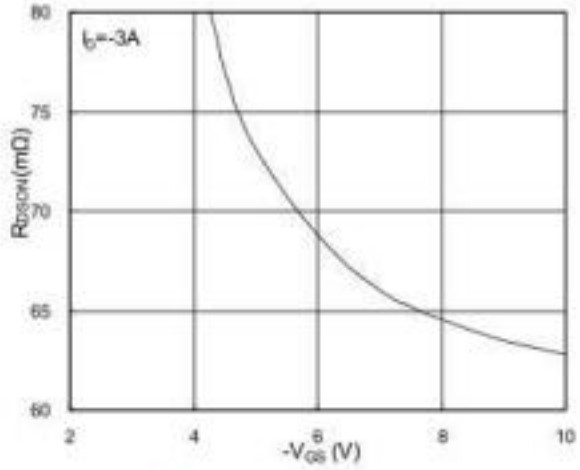


Fig.2 On-Resistance vs. G-S Voltage

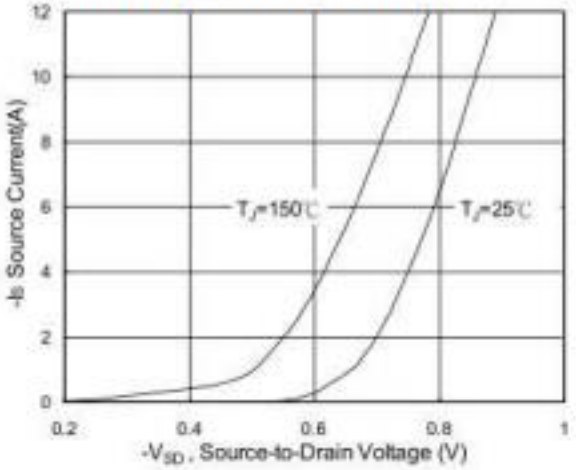


Fig.3 Forward Characteristics of Reverse

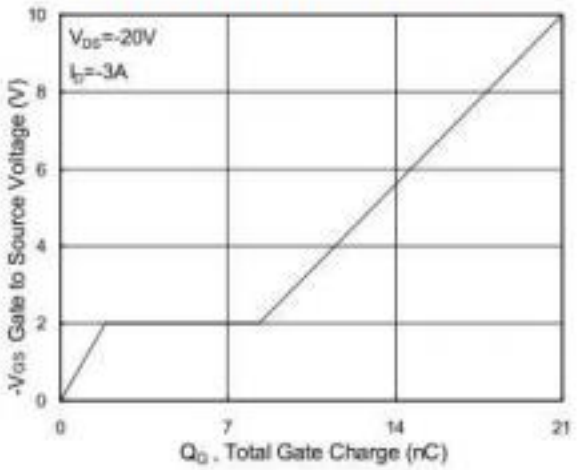


Fig.4 Gate-charge Characteristics

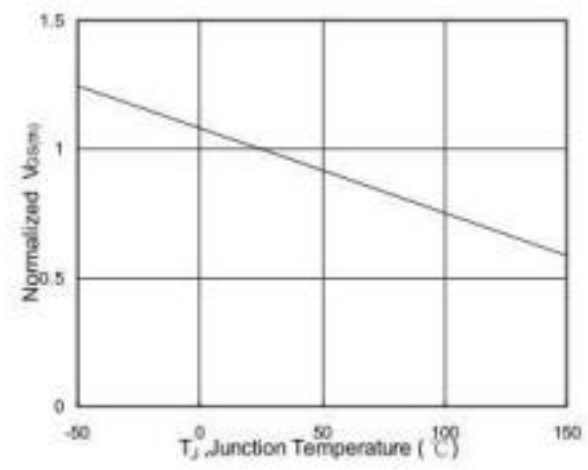


Fig.5 Normalized $V_{GS(th)}$ vs. TJ

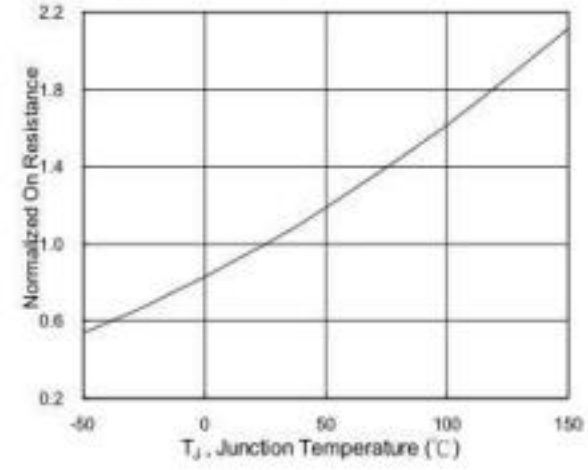


Fig.6 Normalized R_{DSON} vs. T_J

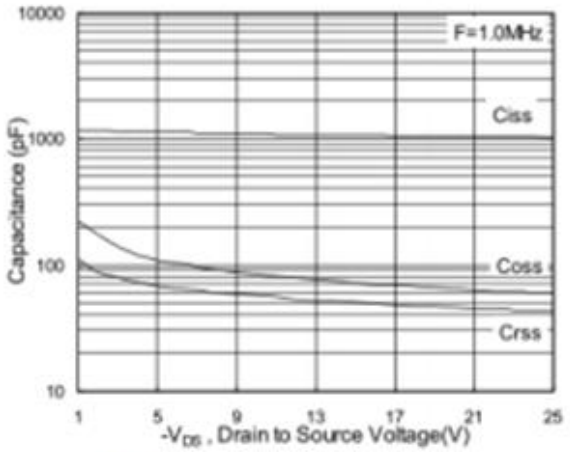


Fig.7 Capacitance

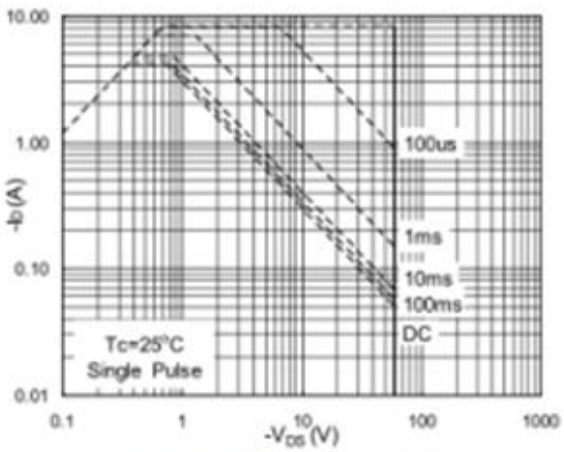
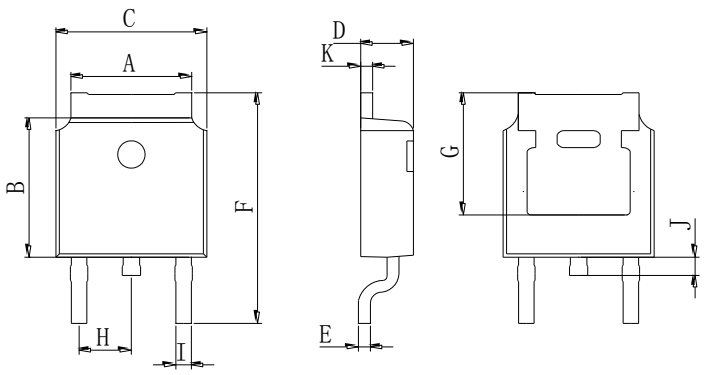


Fig.8 Safe Operating Area

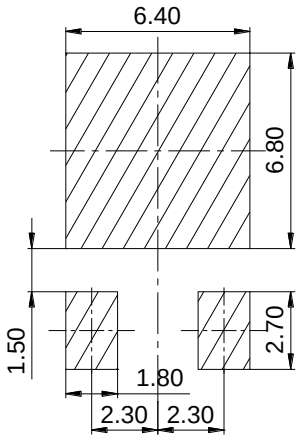
Package Outline Dimensions (Unit: mm)



TO-252		
Dimension	**Min.**	**Max.**
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	9.71	10.31
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	0.50	0.70
K	0.40	0.60

Mounting Pad Layout (Unit: mm)

TO-252



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