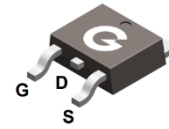
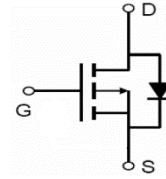


Features

- Advanced Trench technology
- Super low gate charge
- 100% E_{AS} guaranteed
- Excellent C_{dv}/d_t effect decline
- RoHS compliant with Halogen-free

HF



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
BL250P06D	TO-252	80pcs / Tube or 2500pcs / Tape & Reel	250P06D

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 (T _C = 25°C) *1	I _D	-43	A
Continuous Drain Current (T _C = 100°C) *1		-32	A
Pulsed Drain Current *2	I _{DM}	-70	A
Avalanche Energy, Single Pulsed *3	E _{AS}	113	mJ

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T _C = 25°C)	P _D	52.2	W
Thermal Resistance Junction-to-Air *1	R _{θJA}	40	°C/W
Thermal Resistance Junction-to-Case	R _{θJC}	2.4	°C/W
Operating Junction Temperature Range	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

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	-60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -48V, V _{GS} = 0V, T _C = 25°C	-	-	-1	μA
		V _{DS} = -48V, V _{GS} = 0V, T _C = 55°C	-	-	-5	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 = -18A	-	-	25	mΩ
		V _{GS} = -4.5V, I _D = -12A	-	-	33	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	-	3635	-	pF
C _{OSS}	Output Capacitance		-	224	-	
C _{RSS}	Reverse Transfer Capacitance		-	141	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time	V _{GS} = -10V V _{DD} = -15V I _D = -1A R _G = 3.3Ω	-	38	-	ns
t _r	Turn-on Rise Time		-	23.6	-	
t _{d(OFF)}	Turn-Off Delay Time		-	100	-	
t _f	Turn-Off Fall Time		-	6.8	-	
Q _G	Total Gate-Charge	V _{GS} = -4.5V V _{DD} = -12V I _D = -12A	-	25	-	nC
Q _{GS}	Gate to Source Charge		-	6.7	-	
Q _{GD}	Gate to Drain (Miller) Charge		-	5.5	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage *2	I _{SD} = -1A, V _{GS} = 0V	-	-	-1.2	V
I _{SD}	Source-Drain Current(Body Diode) *1,4		-	-	-43	A
I _{SDM}	Pulsed Source-Drain Current(Body Diode) *2,4		-	-	-70	A

Notes:

- The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper
- The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- The E_{AS} data shows Max. rating. The test condition is $V_{DD} = -50V, V_{GS} = -10V, L = 0.1\text{mh}$
- The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation

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

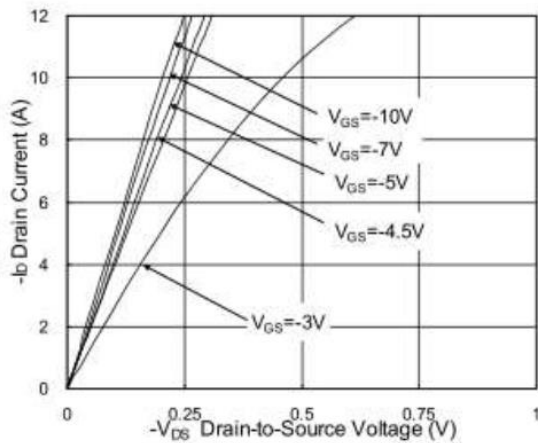


Fig.1 Typical Output Characteristics

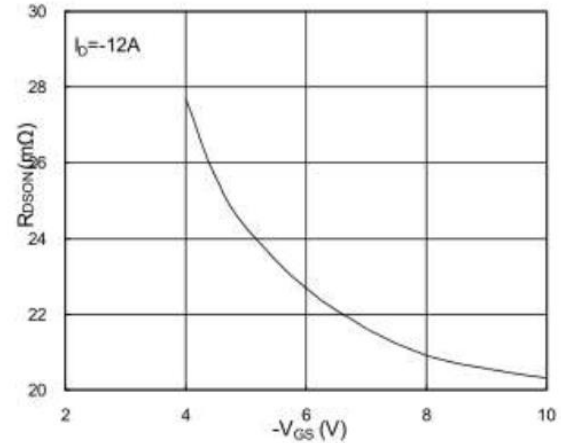


Fig.2 On-Resistance vs. G-S Voltage

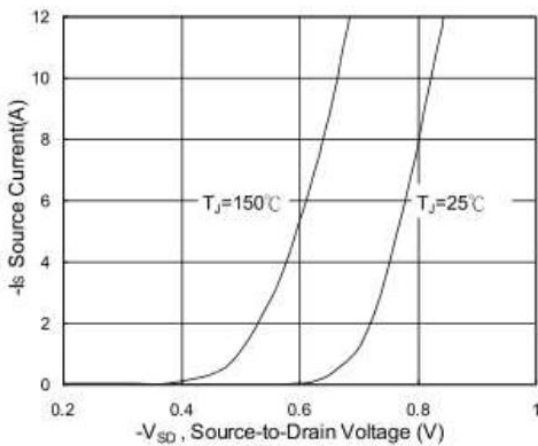


Fig.3 Forward Characteristics of Reverse

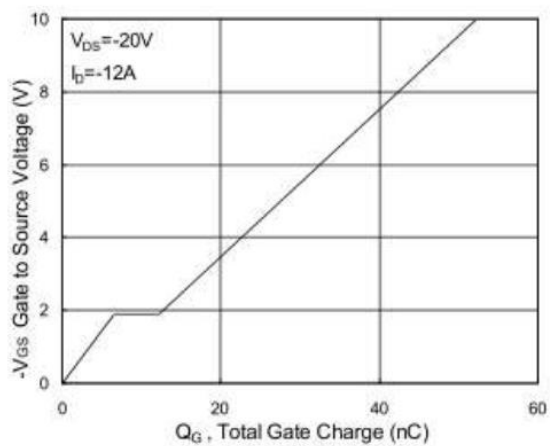


Fig.4 Gate-Charge Characteristics

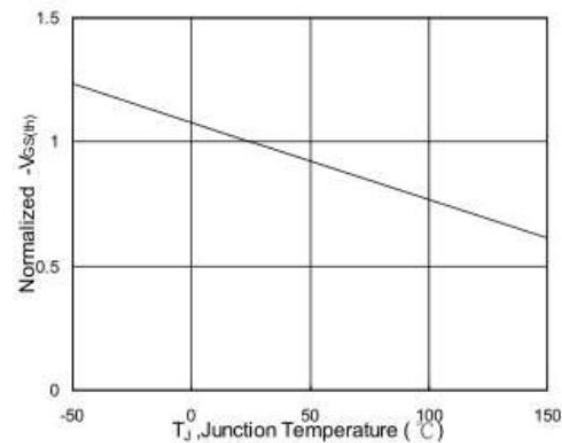


Fig.5 Normalized $-V_{GS(th)}$ vs. T_J

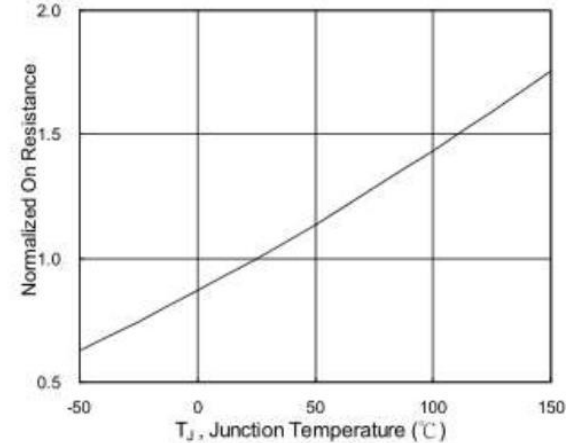


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

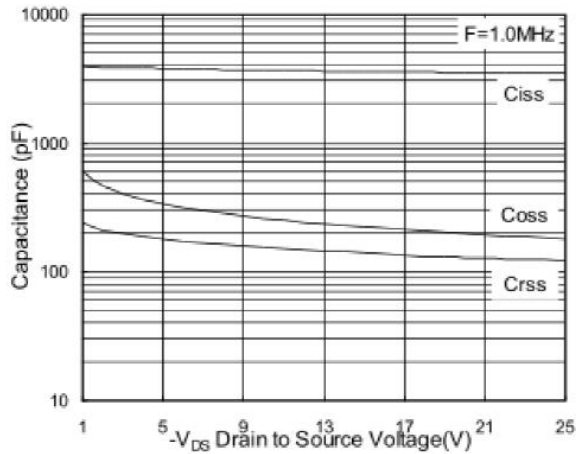


Fig.7 Capacitance

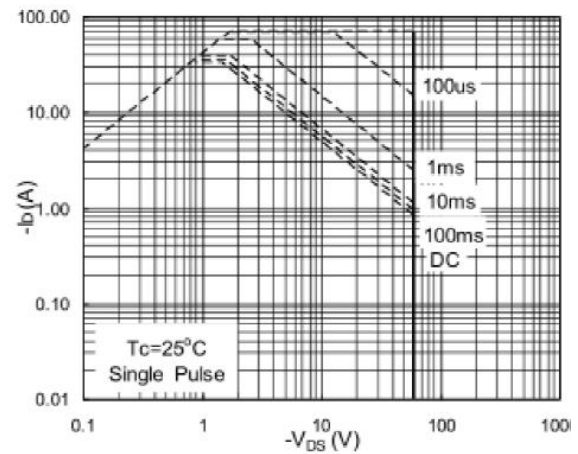


Fig.8 Safe Operating Area

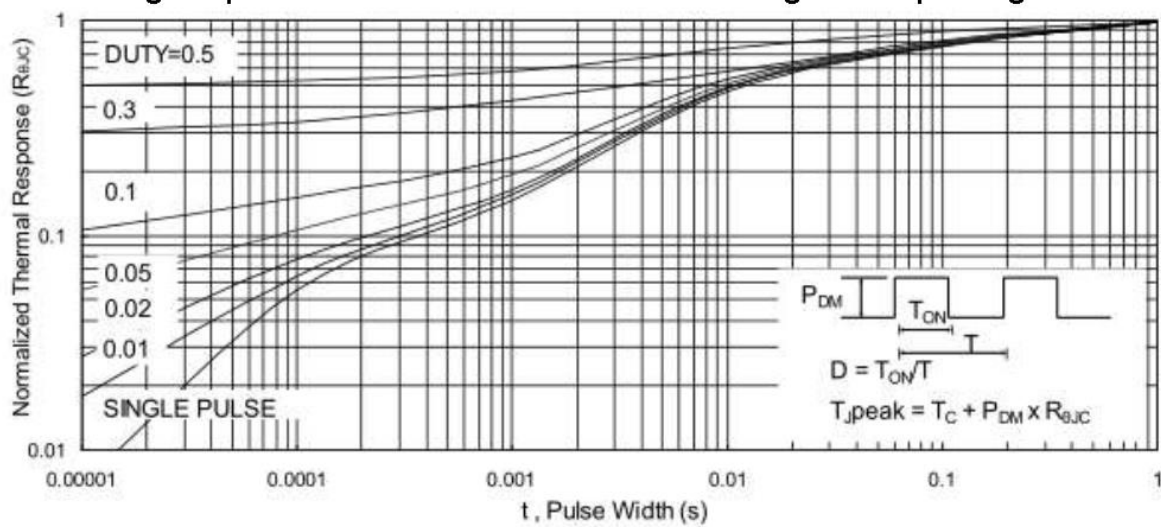
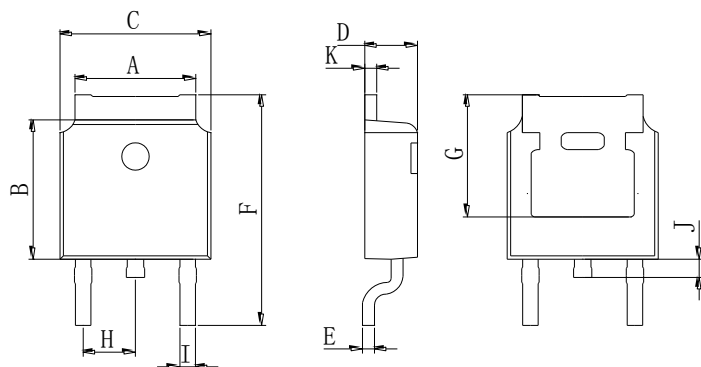


Fig.9 Normalized Maximum Transient Thermal Impedance

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

