

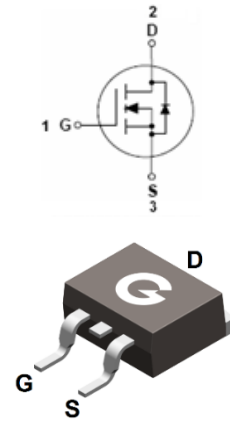
Features

- Ultra Low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness

HF

Mechanical Data

- Case: TO-263
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



TO-263

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL3N90B	TO-263	50 pcs / Tube & 800 pcs / Tape & Reel	3N90B

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V _{DSS}	900	V
Gate-to-Source Voltage	V _{GSS}	±30	V
Continuous Drain Current (T _C = 25°C)	I _D	3	A
Pulsed Drain Current	I _{DM}	12	A
Single Pulse Avalanche Energy *1	E _{AS}	24	mJ

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T _C = 25°C)	P _D	69	W
Power Dissipation (T _A = 25°C)	P _D	3.1	W
Thermal Resistance Junction-to-Air *2	R _{θJA}	40	°C/W
Thermal Resistance Junction-to-Case	R _{θJC}	1.8	°C/W
Operating Junction Temperature Range	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

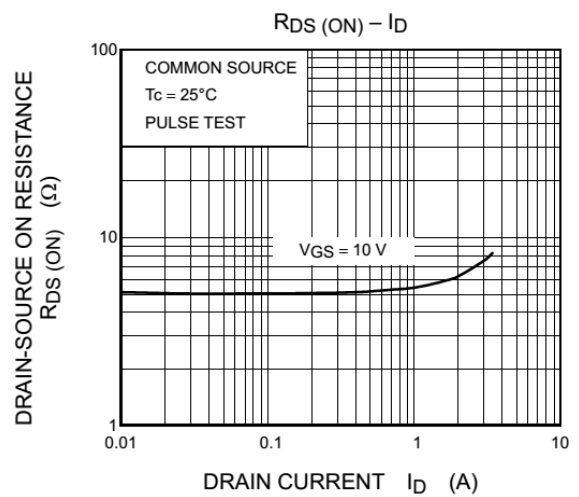
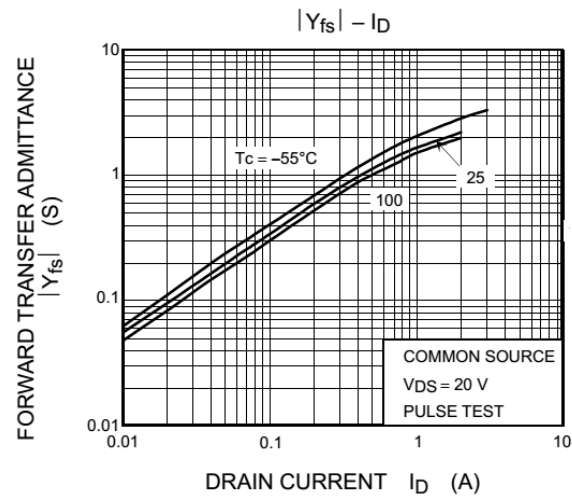
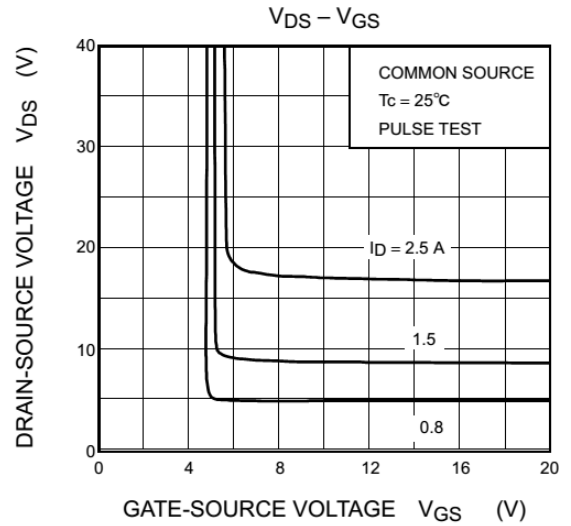
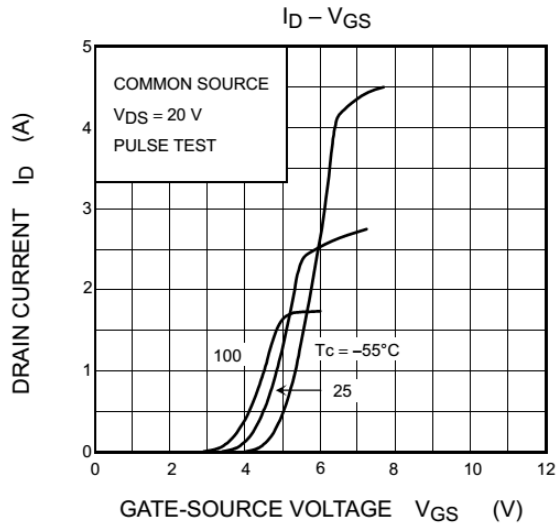
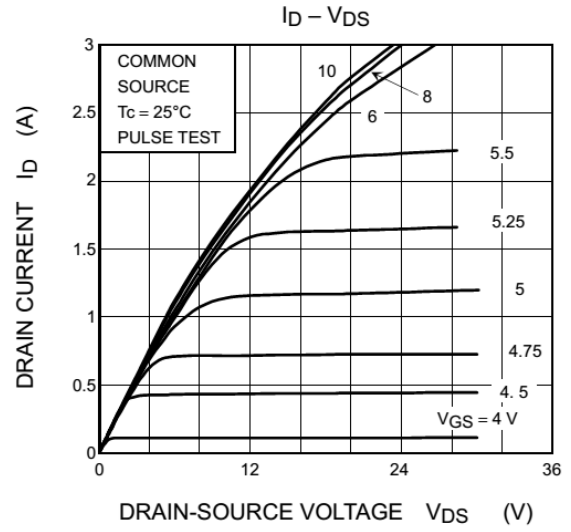
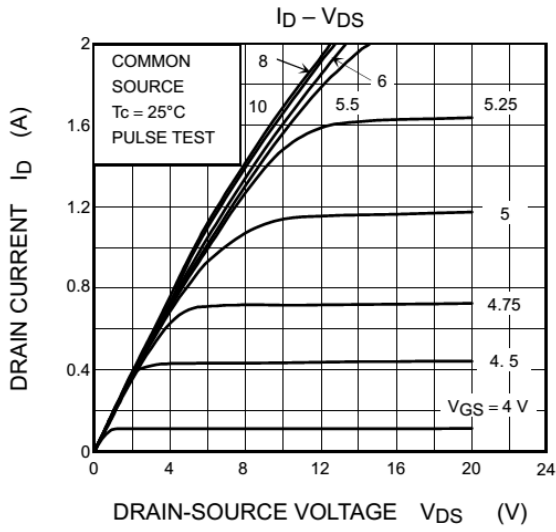
Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

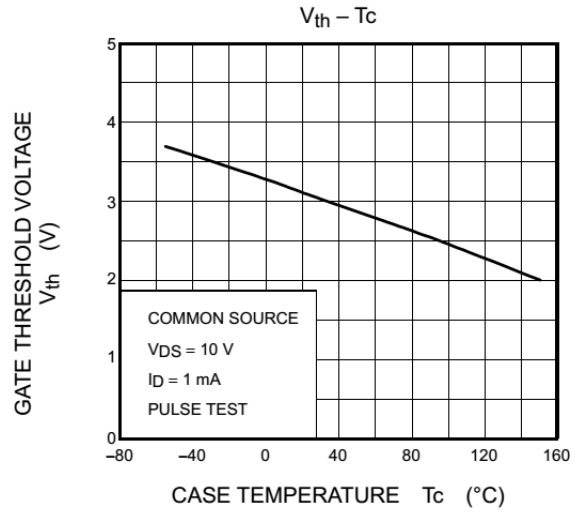
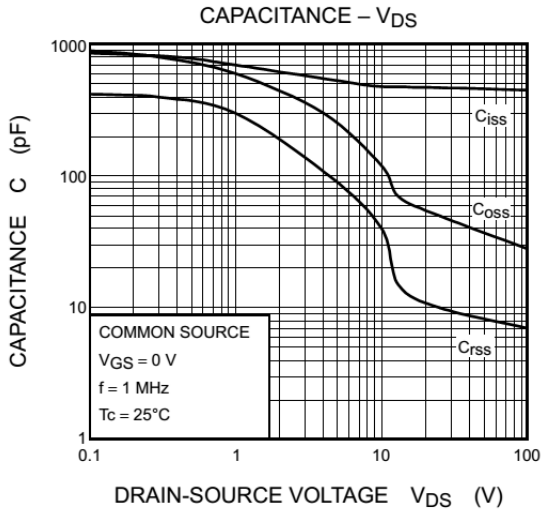
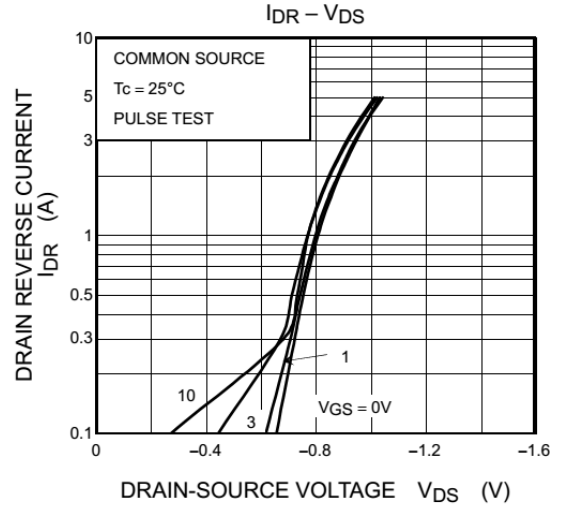
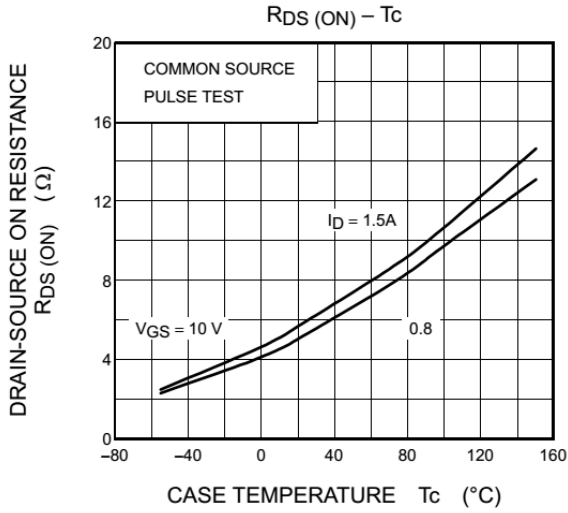
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	900	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 900V, V_{GS} = 0V$	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS} = \pm 30V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance	$V_{GS} = 10V, I_D = 1.5A$	-	-	5.5	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	-	4	V
Dynamic Characteristics						
C_{ISS}	Input Capacitance	$V_{GS} = 0V$	-	480	-	pF
C_{OSS}	Output Capacitance	$V_{DS} = 25V$	-	43	-	
C_{RSS}	Reverse Transfer Capacitance	$f = 1.0MHz$	-	7	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD} = 450V$	-	11	-	ns
t_r	Turn-on Rise Time	$V_{GS} = 10V$	-	14	-	
$t_{d(OFF)}$	Turn-Off Delay Time	$R_G = 25\Omega$	-	44	-	
t_f	Turn-Off Fall Time	$I_D = 3A$	-	26	-	
Q_G	Total Gate-Charge	$V_{DD} = 450V$	-	15	-	nC
Q_{GS}	Gate to Source Charge	$I_D = 3A$	-	2.5	-	
Q_{GD}	Gate to Drain (Miller) Charge	$V_{GS} = 10V$	-	6	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	$I_{SD} = 3A, V_{GS} = 0V$	-	-	1.5	V
I_S	Continuous Source Current(Body Diode)		-	-	3	A
I_{SM}	Maximum Pulsed Current (Body Diode)		-	-	12	A
t_{rr}	Reverse Recovery Time	$I_S = 3.0A, dI_F / dt = 100A/\mu s$	-	140	-	ns
Q_{rr}	Reverse Recovery Charge	$V_{GS} = 0V$	-	530	-	nC

Notes:

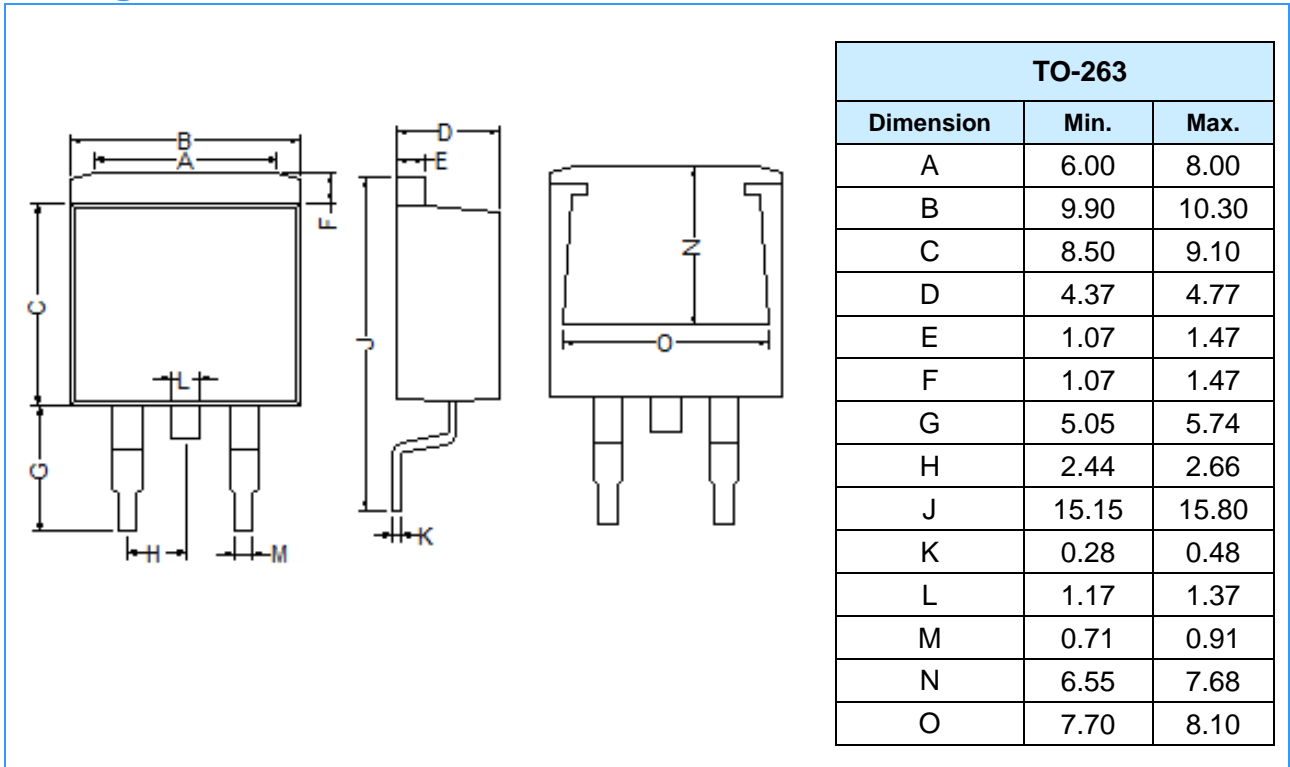
- Limited by T_{Jmax} , starting $T_J = 25^\circ\text{C}$, $L = 10mH$, $V_{DS} = 50V$, $V_{GS} = 15V$
- When mounted on 1" square PCB (FR-4 or G-10 material)

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





Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)

