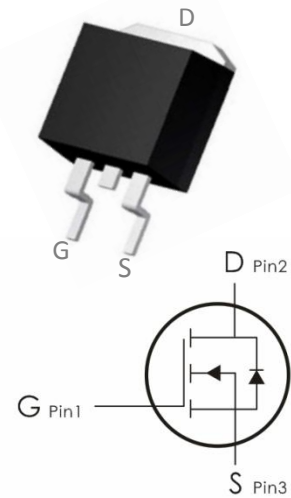


Description:

This N-Channel MOSFET uses advanced Planar technology and design to provide excellent $R_{DS(on)}$ with low gate charge. It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=200V, I_D=50A, R_{DS(ON)}<60m\ \Omega$ @ $V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
BJ50NG	J50N	TO- 263	800 pcs/Reel

Absolute Maximum Ratings: ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	± 30	V
I_D	Continuous Drain Current	50	A
	Continuous Drain Current- $T_C=100^\circ\text{C}$	30	
I_{DM}	Pulsed Drain Current ²	160	
P_D	Power Dissipation	104	W
E_{AS}	Single pulse avalanche energy ³	1280	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.2	$^\circ\text{C}/\text{W}$

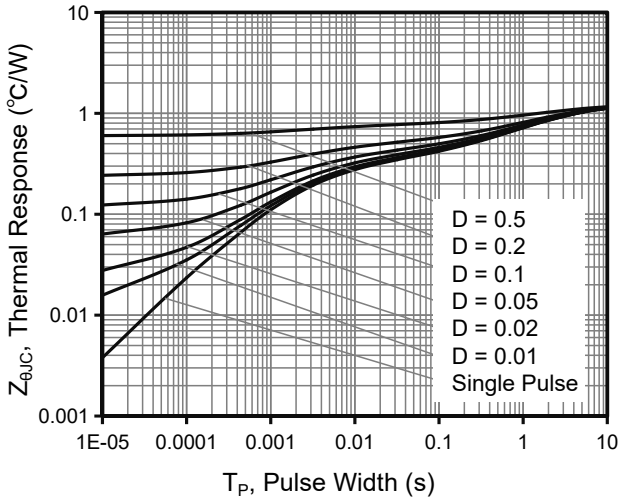
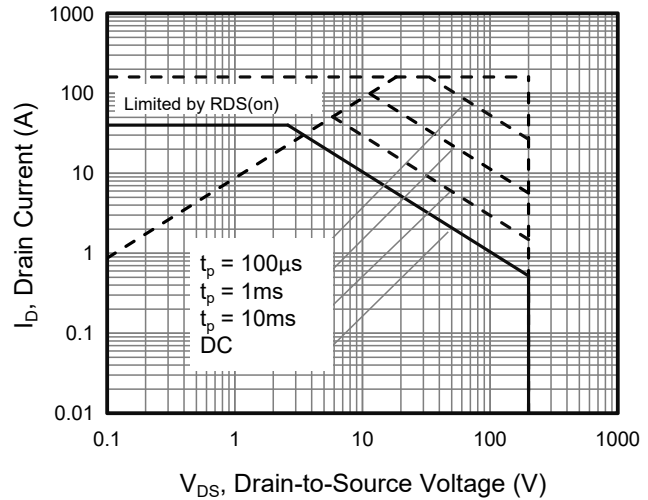
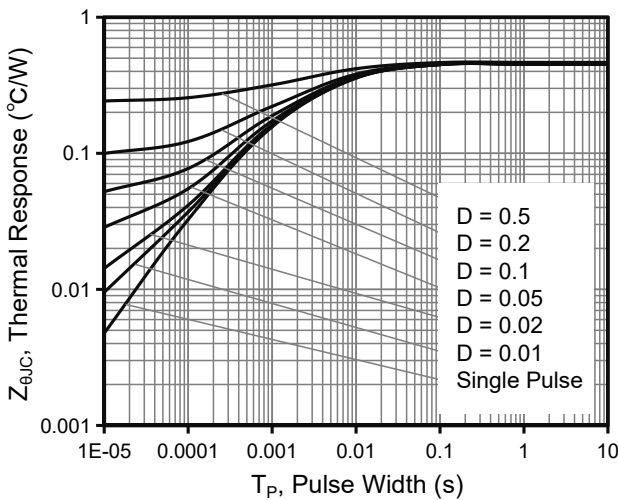
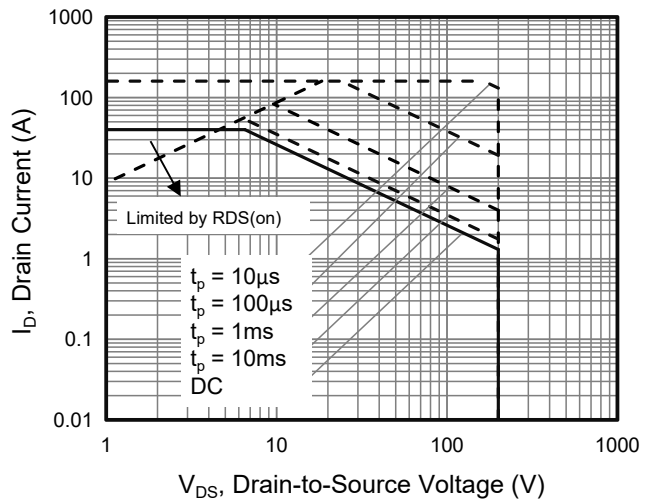
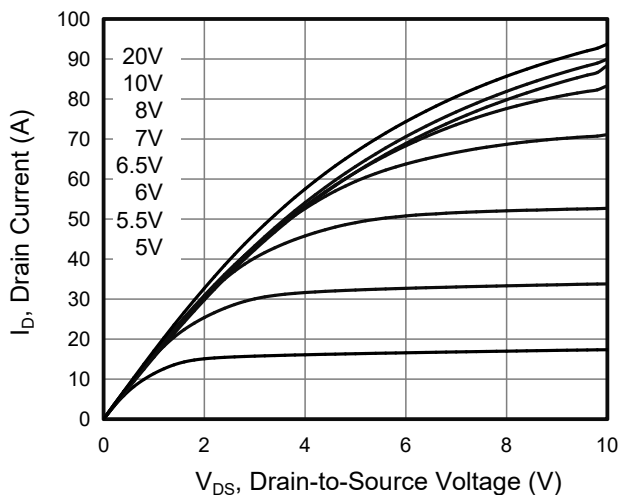
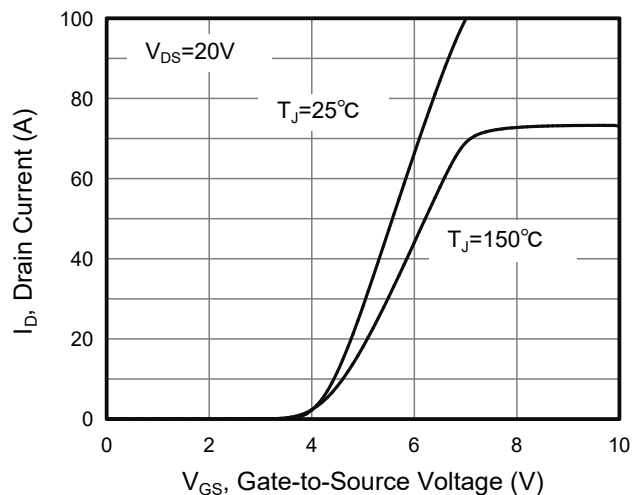
R_{θJA}	Thermal Resistance, Junction to Ambient	80	°C/W
------------------------	---	----	------

Electrical Characteristics: (T_C=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	200	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =200V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V _{GS} =±30V, V _{DS} =0A	---	---	±100	nA
On Characteristics						
V_{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μA	2	---	4	V
R_{DS(ON)}	Drain-Source On Resistance	V _{GS} =10V, I _D =20A	---	50	60	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	3340	---	pF
C_{oss}	Output Capacitance		---	585	--	
C_{rss}	Reverse Transfer Capacitance		---	13.5	---	
Switching Characteristics						
t_{d(on)}	Turn-On Delay Time	V _{DS} =100V, I _D =40A, R _{ENG} =25 Ω, V _{GS} =10V	---	68	---	ns
t_r	Rise Time		---	138	---	ns
t_{d(off)}	Turn-Off Delay Time		---	147	---	ns
t_f	Fall Time		---	103	---	ns
Q_g	Total Gate Charge	V _{GS} =10V, V _{DS} =160V, I _D =40A	---	58.5	---	nc
Q_{gs}	Gate-Source Charge		---	21.1	---	nc
Q_{gd}	Gate-Drain "Miller" Charge		---	16.7	---	nc
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =40A	---	---	1.2	V
I_S	Continuous Drain Current	V _D =V _G =0V	---	---	50	A
I_{SM}	Pulsed Drain Current		---	---	160	A
T_{rr}	Reverse Recovery Time	I _F =200A, T _J =25°C	---	569	---	ns
Q_{rr}	Reverse Recovery Charge		dI/dt=100A/us	---	9.9	---

Notes:

1. Limited by maximum junction temperature.
2. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. L=10mH, I_D=16A, Start T_J=25°C

Typical Characteristics: (T_c=25°C unless otherwise noted)

Figure 1. Transient Thermal Impedance For TO-220F, TO-220FT

Figure 2. Safe Operation Area For TO-220F, TO-220FT

Figure 3. Transient Thermal Impedance For TO-220/3P/247

Figure 4. Safe Operation Area For TO-220/3P/247

Figure 5. Output Characteristics

Figure 6. Transfer Characteristics

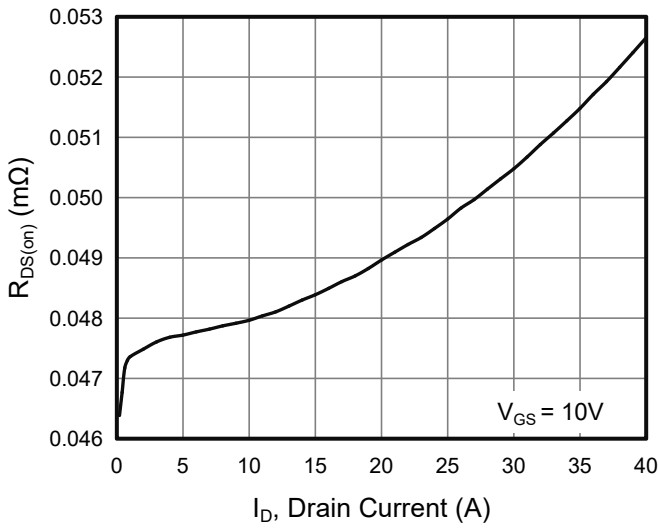


Figure 7. On-Resistance vs Drain Current

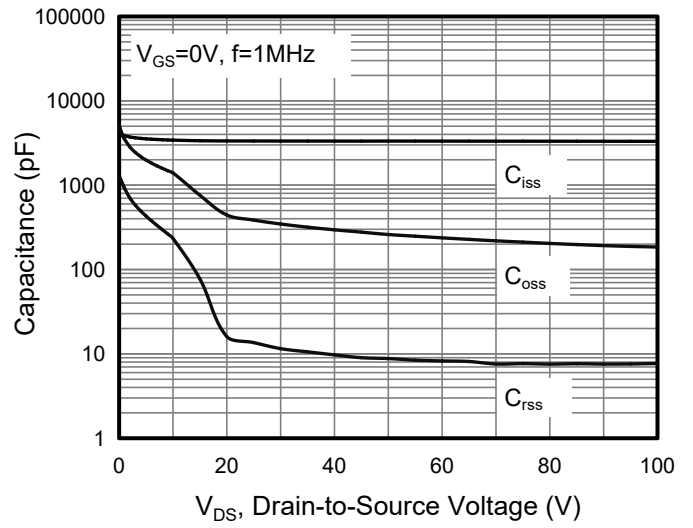


Figure 8. Capacitance

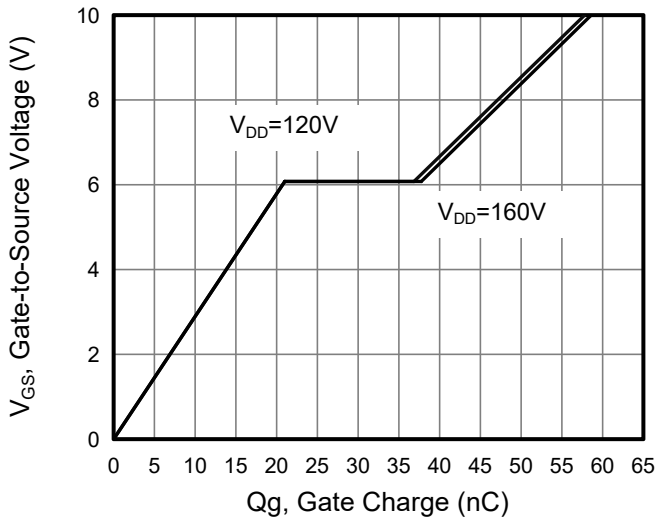


Figure 9. Gate Charge

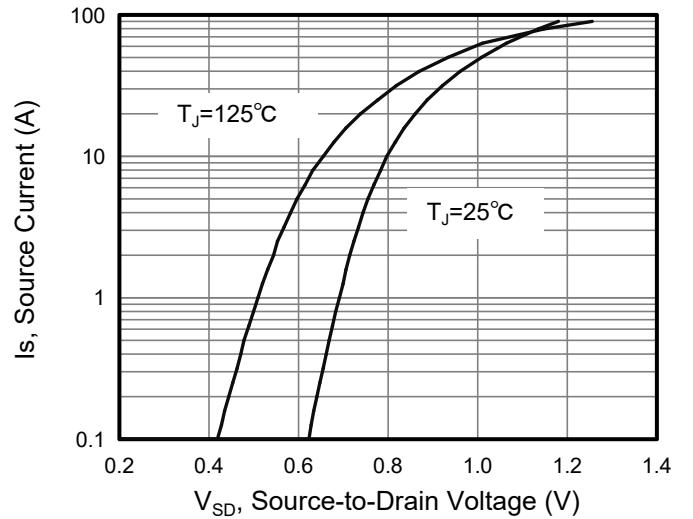


Figure 10. Body Diode Forward Voltage

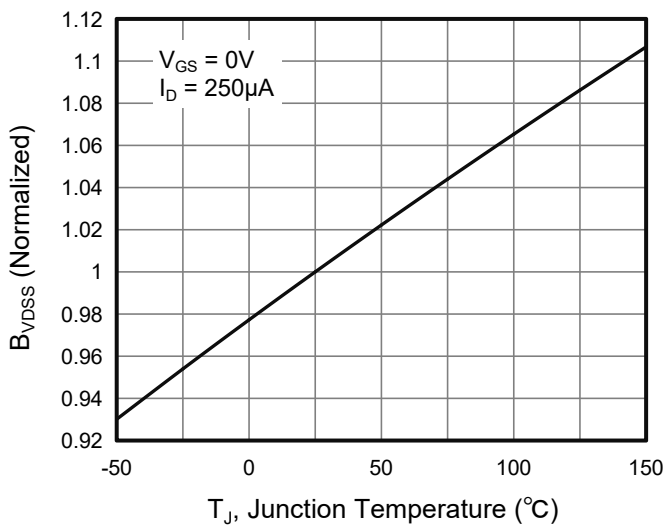


Figure 11. Breakdown Voltage vs Junction Temperature

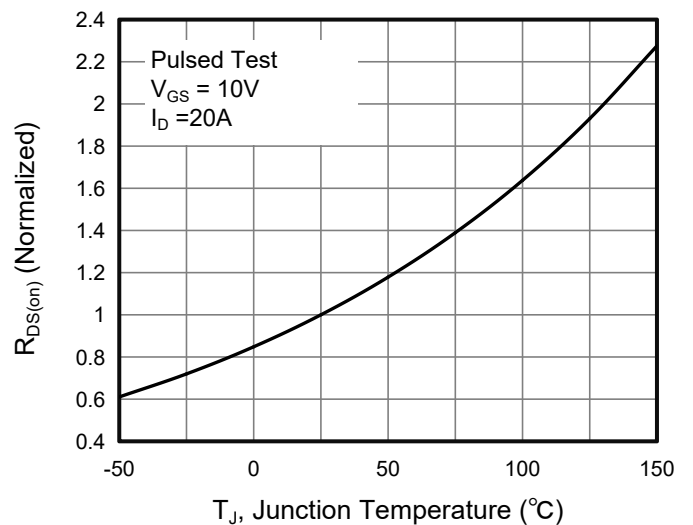
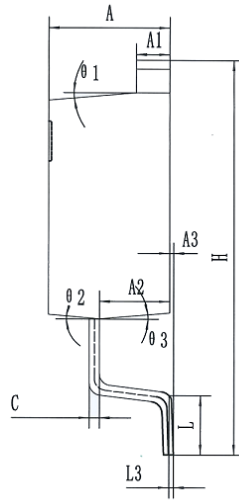
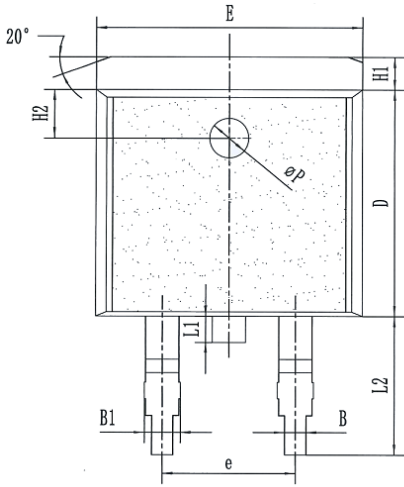


Figure 12. On-Resistance vs Temperature

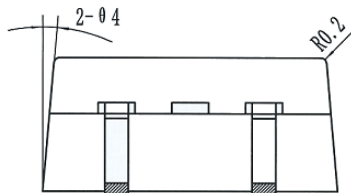
TO-263 Package Information: Unit:mm

Package Outline Type-A

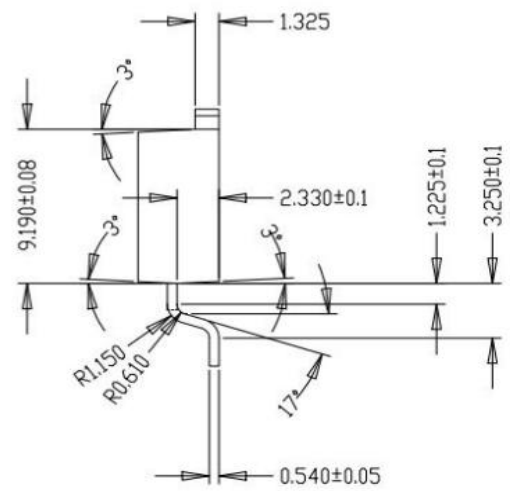
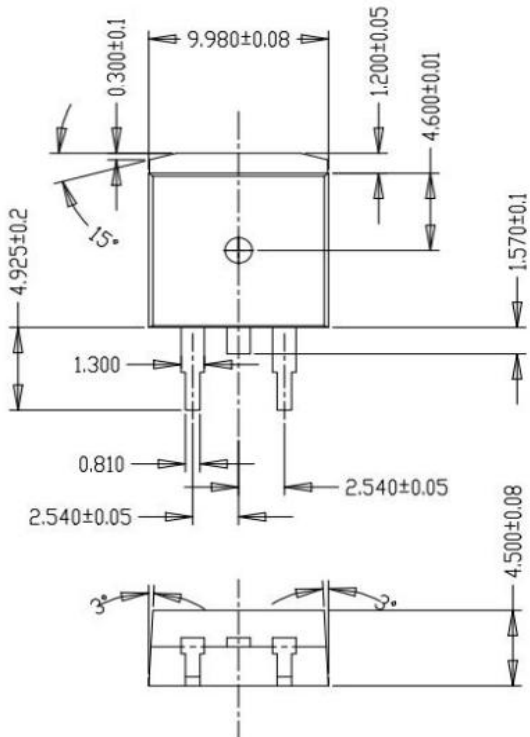


COMMON DIMENSIONS

SYMBOL	MM		
	MIN	NOM	MAX
A	4.50	4.60	4.70
A1	1.22	1.27	1.32
A2	2.57	2.67	2.77
A3	0.00		0.15
B	0.76	0.81	0.87
B1	1.32	1.37	1.42
C	0.33	0.38	0.43
D	8.55	8.65	8.75
e	5.08 BSC		
E	10.06	10.16	10.26
H	14.80	15.00	15.20
H1	1.17	1.27	1.37
H2	1.85 REF		
L	2.09	2.39	2.69
L1	0.80	1.00	1.20
L2	4.88	5.08	5.28
L3	0.25 REF		
φP	1.40	1.50	1.60
θ1	3°	5°	7°
θ2	3°	5°	7°
θ3	3°	5°	7°
θ4	3°	5°	7°



Package Outline Type-B



Marking Information:

①. Doingter LOGO

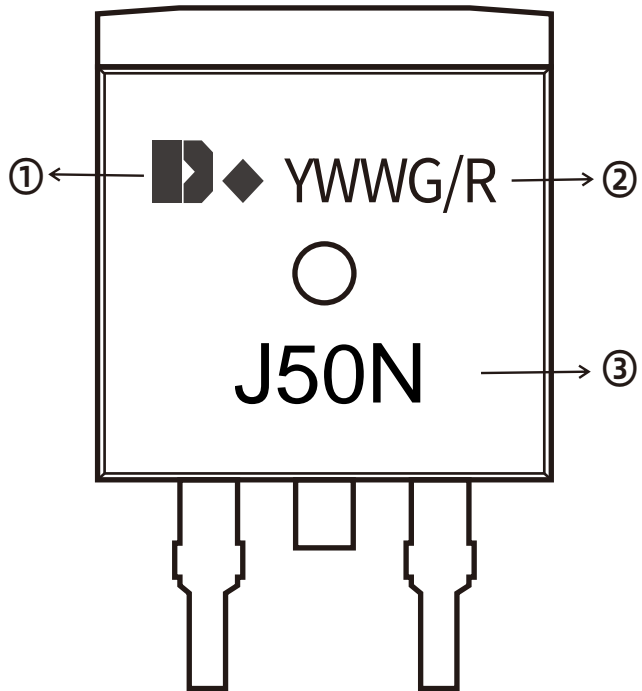
②. Date Code(YWWG / R)


Y : Year Code , last digit of the year

WW : Week Code(01-53)

G/R : G(Green) /R(Lead Free)

③. Part NO.

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