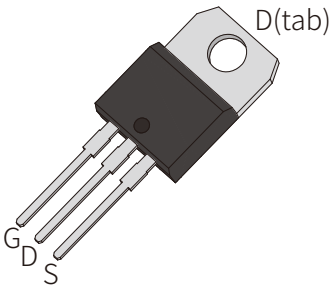
FEATURES

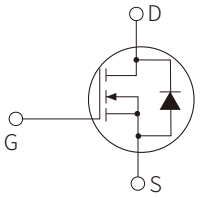
- Super Trench
- Advanced Trench Cell Desigh



TO-220B(Non-Ins)

APPLICATION

- Power Tool Appliances
- BMS Appliances
- High Power Inverter System



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Rating	Unit
Drain-source voltage		V_{DS}	100	V
Continuous Drain Current	Tc=25°C	I_D	103	A
	Tc=100°C		80	
Pulsed Drain Current [1]		I_{DM}	200	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation	Tc=25°C	P_D	223	W
	Tc=100°C		89	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C
Junction - to - Case		$R_{\theta JC}$	0.56	°C/W
Junction - to - Ambient		$R_{\theta JA}$	60	

1) Pulse width limited by maximum junction temperature

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_{DS}=250μA	100			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	2.4	3	3.6	V
Drain Leakage Current	I_{DSS}	V_{DS}=100V,V_{GS}=0V			1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS}=0V			±100	nA
On-State Resistance [3]	$R_{DS(on)}$	V_{GS}=10V,I_D=30A		6.5	8	mΩ
Dynamic Characteristics						
Total Gate Charge	Q_g	V_{GS} =0 to 10V V_{DS}=50V,I_D=20A		29		nC
Gate Source Charge	Q_{gs}			6.8		nC
Gate Drain("Miller") Charge	Q_{gd}			8.4		nC
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=50V, f=1MHz		1757		pF
Output capacitance	C_{oss}			985		pF
Reverse transfer capacitance	C_{rss}			12		pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=50V,V_{GS}=10V R_{GEN}=6Ω,I_D=20A		8.4		nS
Turn-on Rise Time	t_r			9.4		nS
Turn-Off Delay Time	$t_{d(off)}$			27		nS
Turn-Off Fall Time	t_f			18		nS
Drain-Source Diode Characteristics and Max Ratings						
Drain to Source Diode Forward Voltage	V_{SD}	I_S=30A, V_{GS}=0V			1.2	V
Maximum Continuous Drain to Source Diode Forward Current	I_S				100	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}				400	A
Body Diode Reverse Recovery Time	t_{rr}	I_F=15A, di/dt=100A/μs		45		ns
Body Diode Reverse Recovery Charge	Q_{rr}			53		nC

PARAMETER CHARACTERISTIC CURVE

Fig 1: On-Region Characteristics

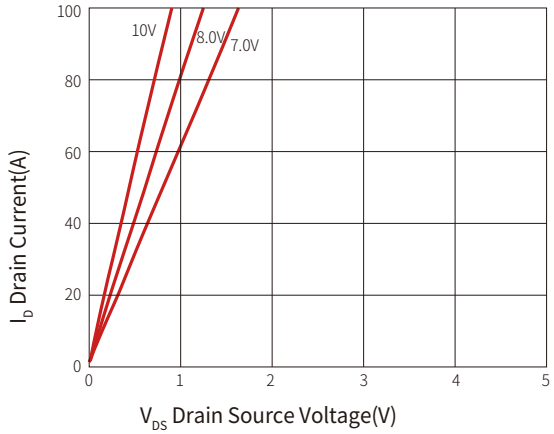


Figure 2: On-Resistance Variation with Drain Current and Gate Voltage

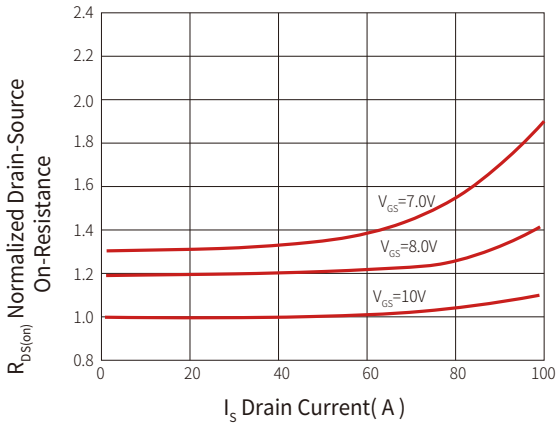


Figure 3: On-Resistance Variation with Temperature

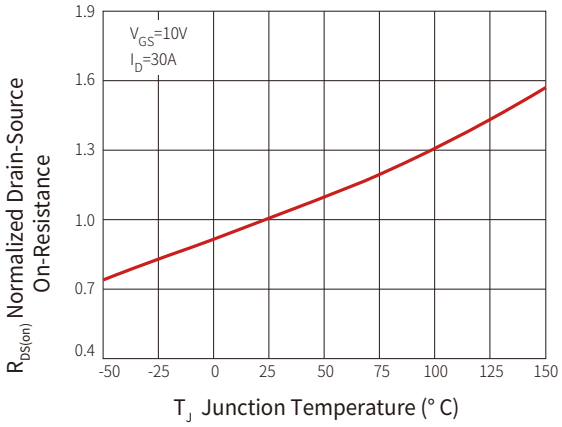


Figure 4: On-Resistance Variation with Gate-Source Voltage

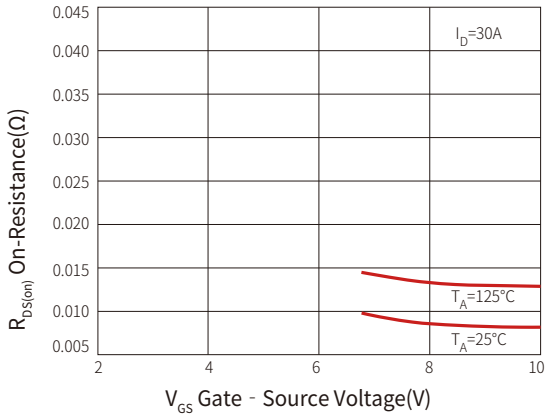


Figure 5: Transfer Characteristics

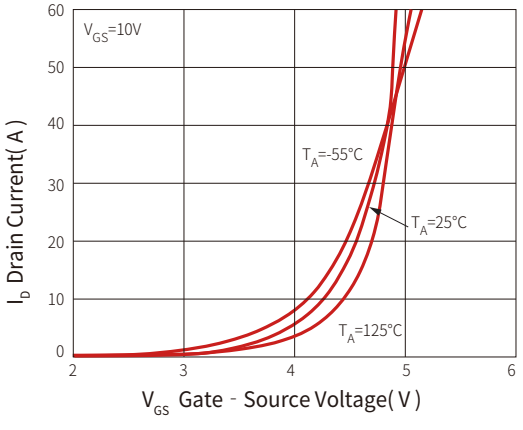


Figure 6: Body Diode Forward Voltage Variation with Source Current and Temperature

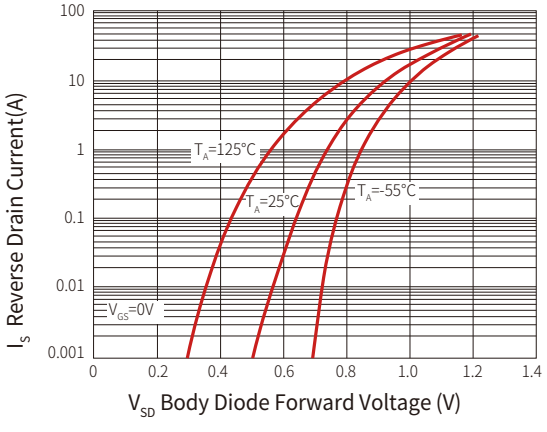


Figure 7: Gate Charge Characteristics

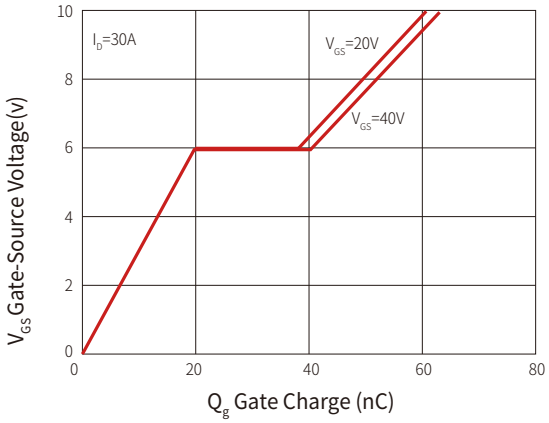


Figure 8: Capacitance Characteristics

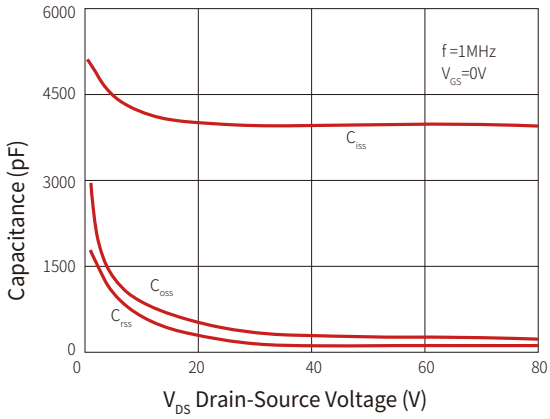


Figure 9: Maximum Safe Operating Area

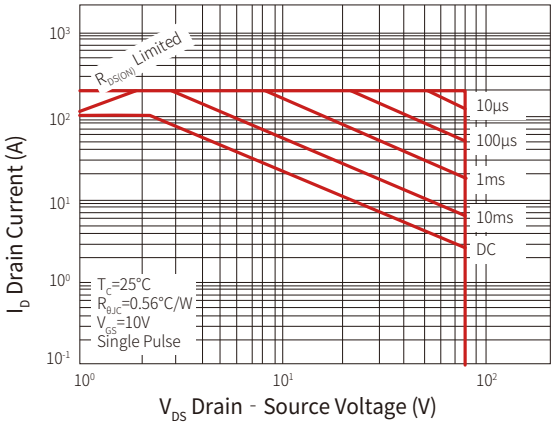


Figure 10: Single Pulse MaximumPower Dissipation

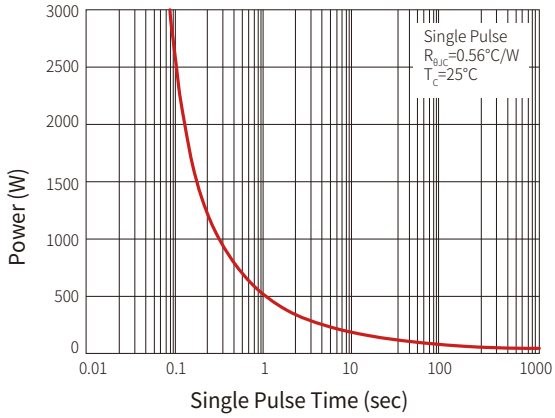
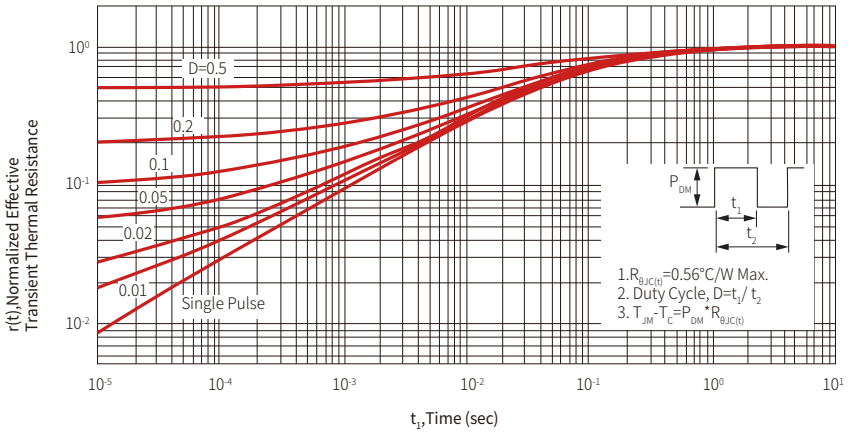
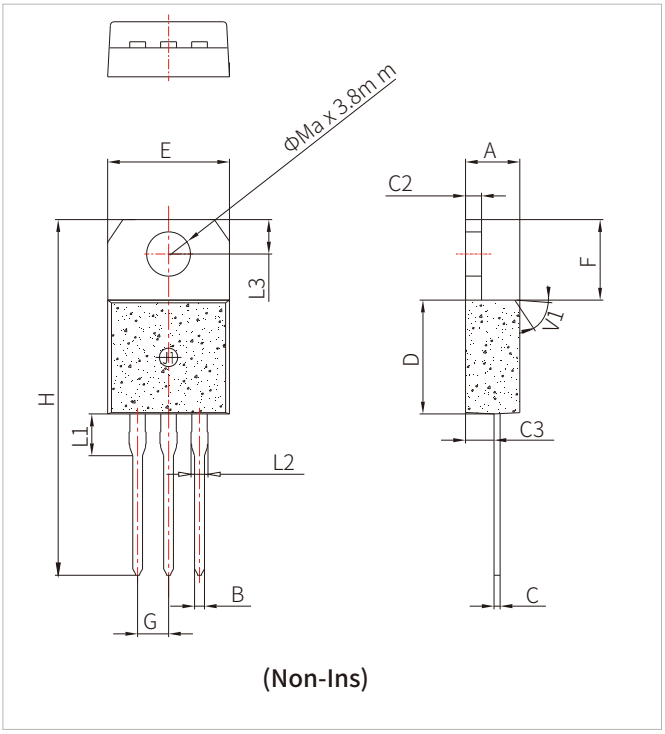


Figure 11: Transient Thermal Response Curve



TO-220B PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.70	0.169		0.185
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Tube
SNM100N10B	TO-220B	100N10 XXXX	1000PCS

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