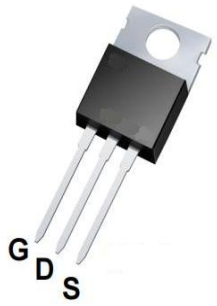
DMT105N20

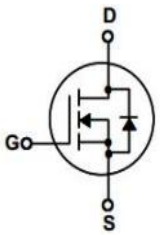
200V 105A N-CHANNEL POWER MOSFET

1.Features

- V_{DS} 200V
- $R_{DS(ON)}$≤10Ω @VGS=10V

TO-220





1.Gate
2. Drain
3. Source

2.Mechanical Data

- Case:Molded Plastic,TO-220;
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking: marked on body.
- Mounting Position : Any.

3.Maximum Ratings and Electrical Characteristics

Rating at 25℃ Cambient temperature unless otherwise specified

Characteristics		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	200	V
Drain Current Continuous	T_C=25°C	I_D	108	A
	T_C=100°C		74	
Drain Current Pulsed		I_{DM}	420	A
Single Pulsed Avalanche Energy @L=0.1mH		E_{AS}	1332	mJ
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation(T_C=25℃)		P_D	299	W
Maximum Junction Temperature		T_J	-55 to +175	°C
Storage Temperature Range		T_{stg}	-55 to +175	°C
Thermal Resistance, Junction-to-Case		$R_{\theta JA}$	60	°C/W
Thermal Resistance, Junction-to-Case		$R_{\theta JC}$	0.5	°C/W

Characteristics	Symbol	Test conditions	Min	TYP	Max	Unit
Off Characteristics						
Drain -Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V,I_D=250μA	200	-	-	V
Zero Gate Voltage Drain Current @T_J=25°C	I_{DSS}	V_{DS}= 20V,V_{GS}= 0V	-	-	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}= 20V	-	-	100	nA
Gate-Source Leakage Current		V_{GS}= -20V	-	-	-100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS\ (th)}$	V_{GS}= V_{DS}, I_D=250μA	2.0	3.0	4.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V， I_D=12A	-	8.8	10	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} =100V	-	5375	-	pF
Output Capacitance	C_{oss}	V_{GS}=0V	-	457	-	
Reverse Transfer Capacitance	C_{rss}	f=1.0MHZ	-	40	-	
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=100V, V_{GS}=10V	-	16	-	ns
Turn-on Rise Time	t_r	I_D=50A	-	82	-	
Turn-off Delay Time	$t_{d(off)}$		-	55	-	
Turn-off Fail Time	t_r		-	84	-	
Total Gate Charge	Q_g	V_{DS}=100V, V_{GS}=10A	-	70	-	nc
Gate-Source Charge	Q_{gs}	I_D=50A	-	25	-	
Gate-Drain Charge	Q_{gd}		-	16	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	I_S=20A,V_{GS}=0V	0.5	0.85	1.2	V
Reverse Recovery Time	T_{rr}	I_F =50A,V_{DS}=0V	65	129	258	ns
Reverse Recovery Charge	Q_{rr}	dI/dt=100A/μS	376	752	1504	nC

4.Rating And Characteristic Curves

Fig.1 Typical Output Characteristics

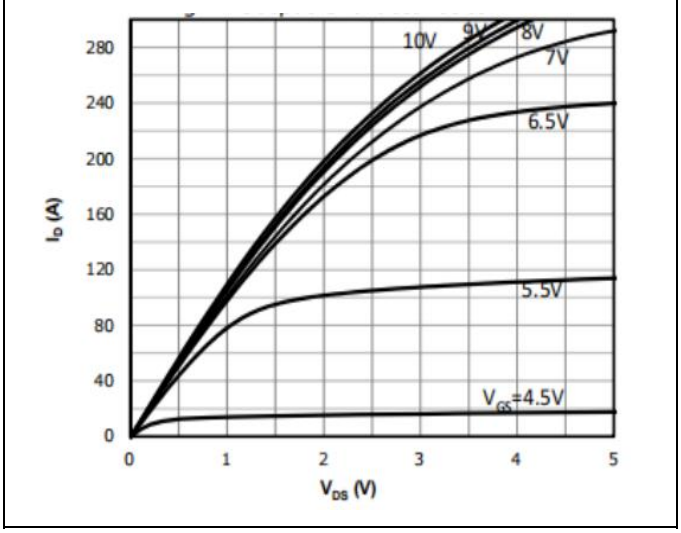


Fig.2 Transfer Characteristics

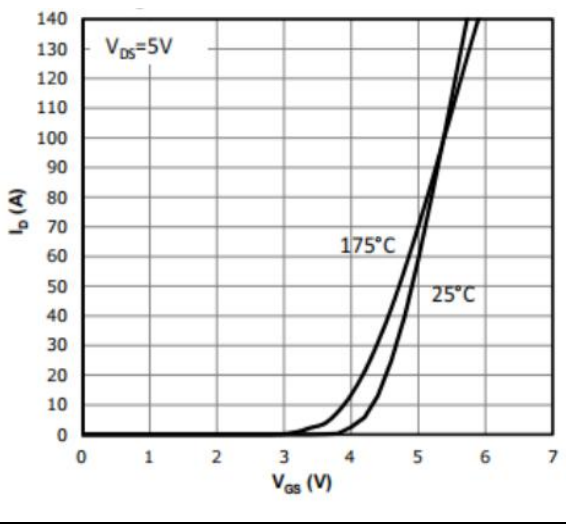


Fig.3 On-Resistance vs. Drain Current and Gate Voltage

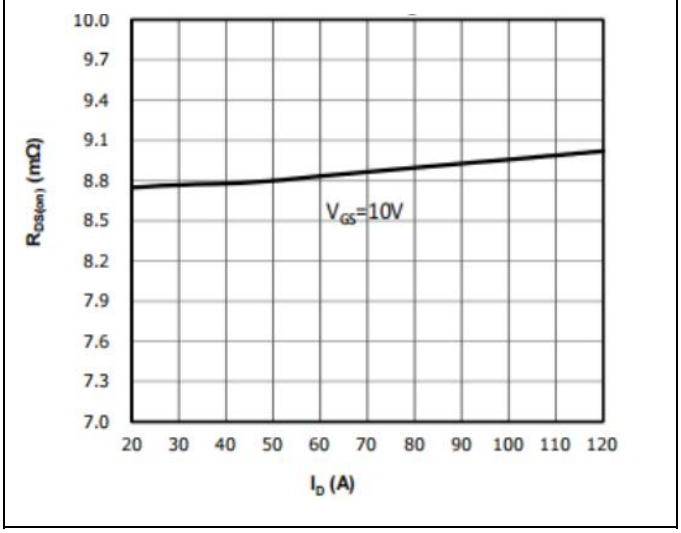


Fig.4 Rds(on) vs Gate Voltage

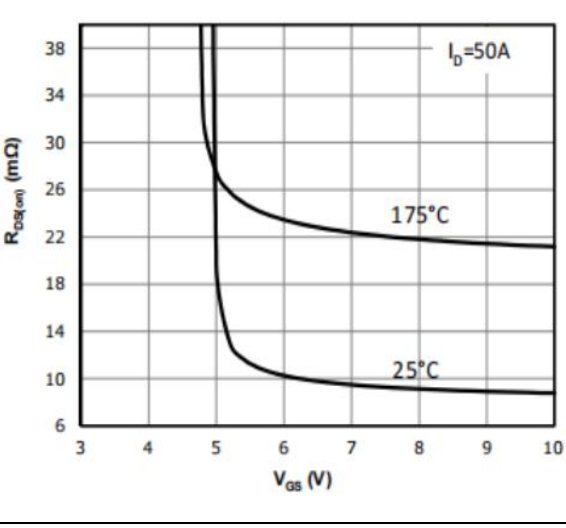


Fig.5 Rds(on) vs. Temperature

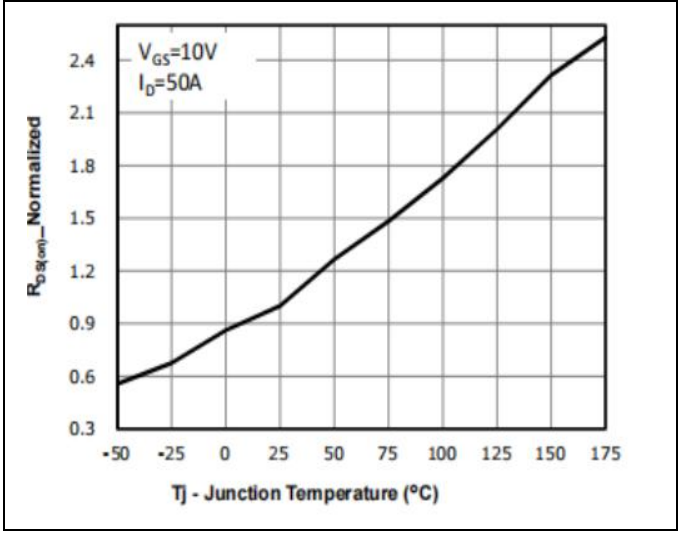


Fig.6 Capacitance Characteristics

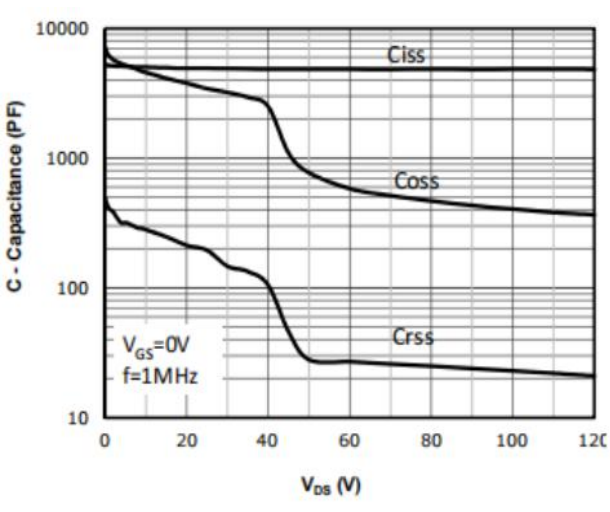


Fig.7 Vgs(th) vs. Temperature

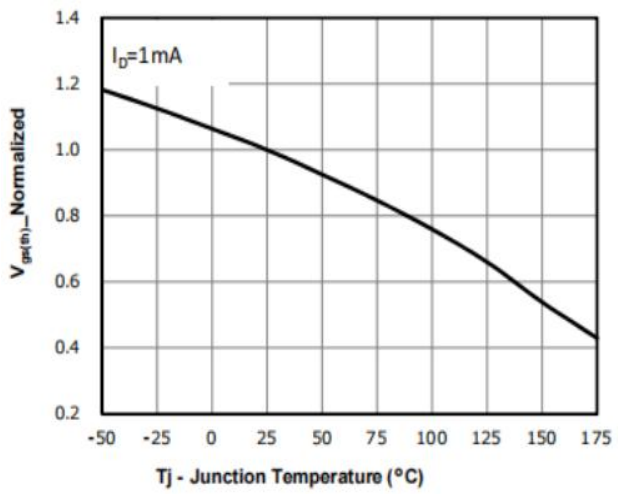


Fig.8 BVdss vs. Temperature

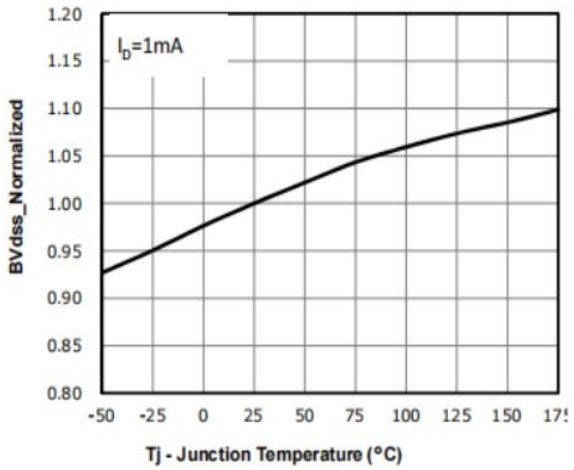


Fig.9 Gate Charge Characteristics

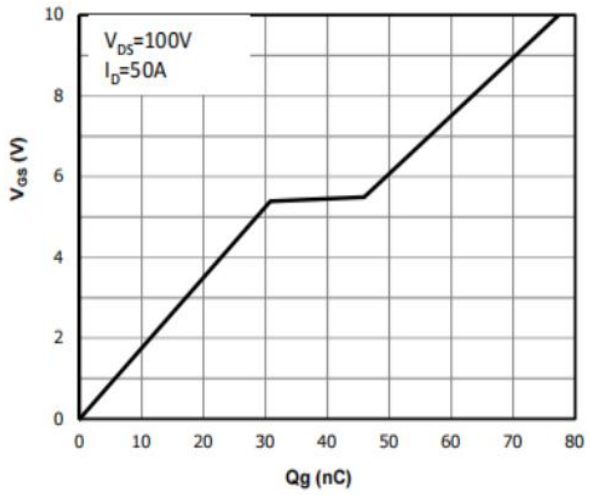


Fig.10 Body-diode ForwardCharacteristics

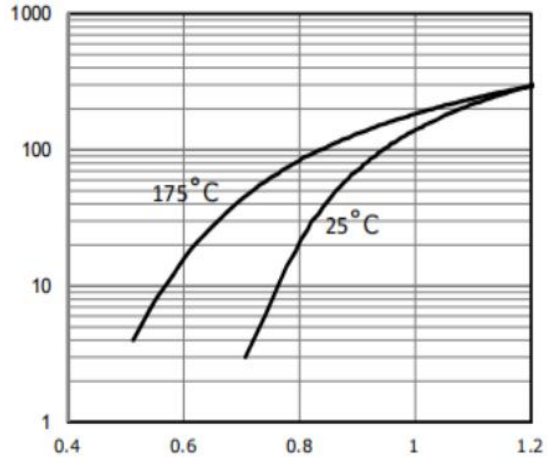


Fig.11 Power Dissipation

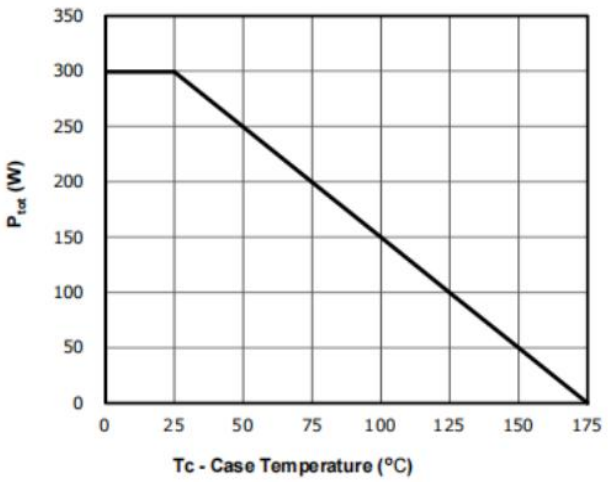


Fig.12 Drain Current Derating

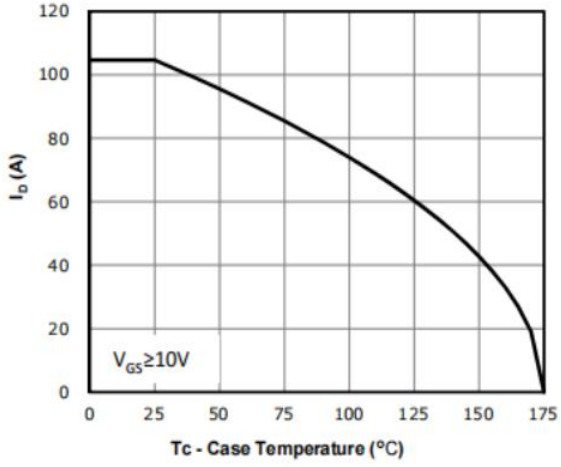


Fig.13 Safe Operating Area

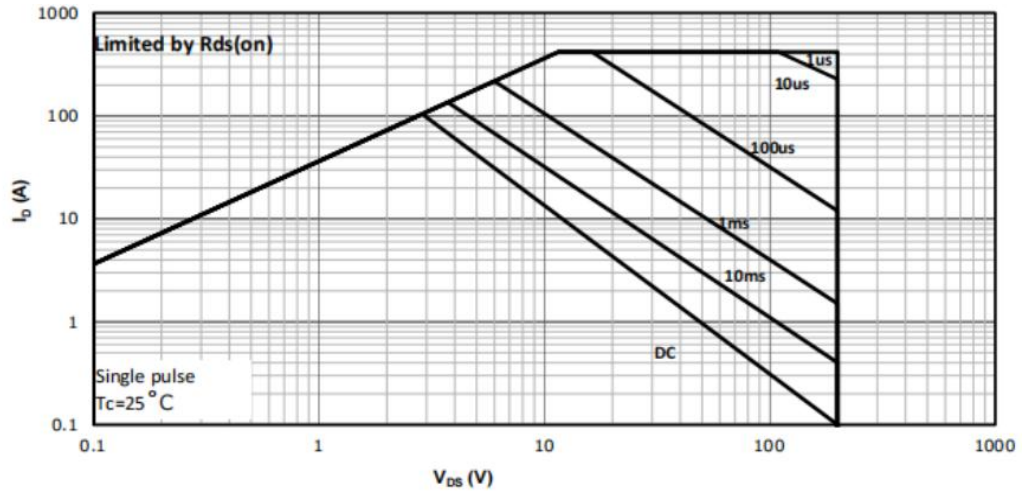
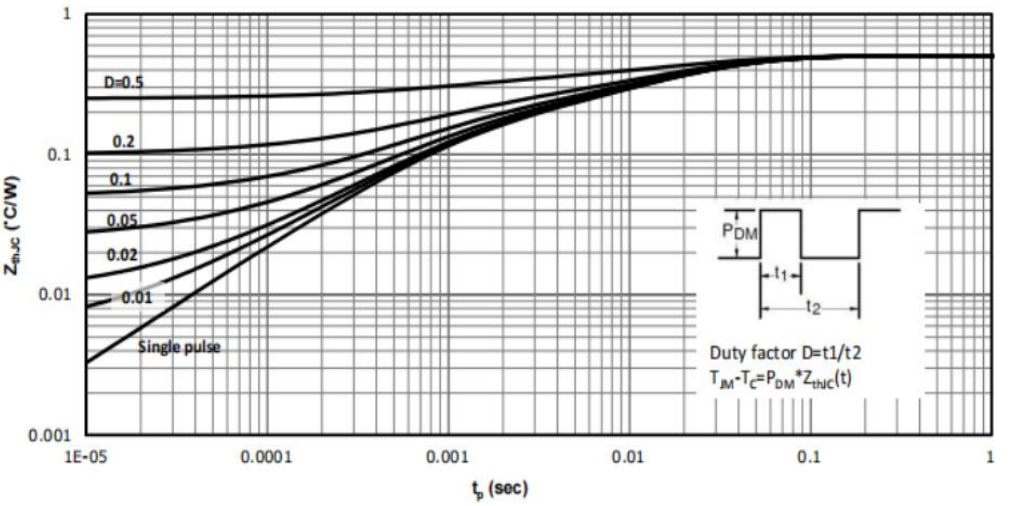
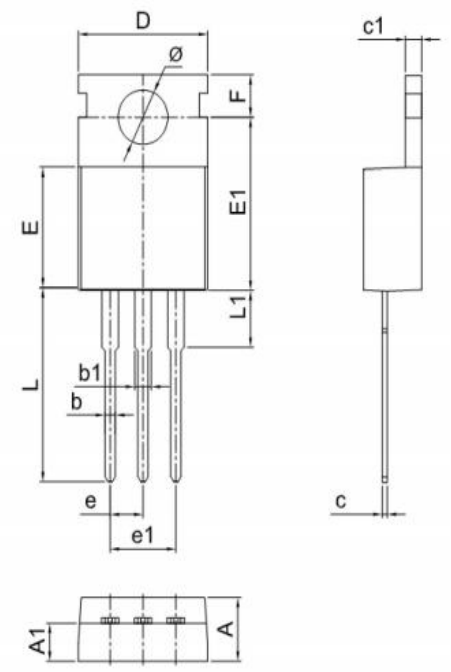


Fig.14 Max. Transient Thermal Impedance



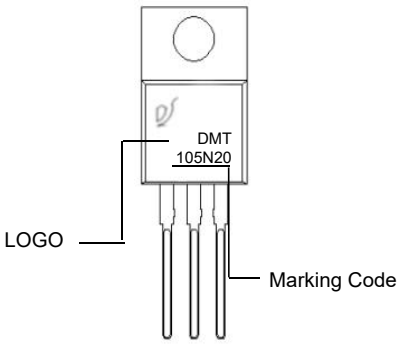
5.Dimensions

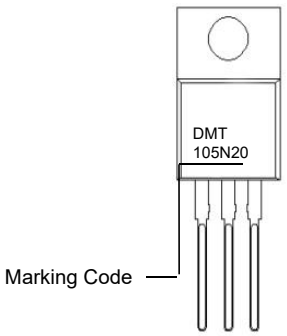
TO-220 Mechanical Drawing



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.168	0.192	4.27	4.87
b	0.016	0.039	0.40	1.00
b1	0.046	0.070	1.17	1.78
c	0.013	0.026	0.33	0.65
c1	0.045	0.057	1.15	1.45
D	0.382	0.417	9.70	10.60
E	0.335	0.374	8.50	9.50
e	0.094	0.104	2.40	2.65
F	0.100	0.134	2.54	3.40
L	0.500	0.579	12.70	14.70
L1	0.079	0.134	2.00	3.40

6. Part Marking System





7. Package Information

Package	Packing Type	Quantity(pcs)
TO-220	Tube	50

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