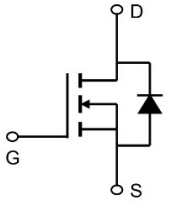
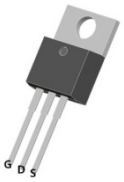
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	140A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 4.2mΩ(Type:3.5mΩ)





TO-220AB

TO-263

Features

- Ultra-low RDS(ON)
- Low Gate Charge
- High Current Capability
- 100% UIS Tested, 100% Rg Tested

Pb lead-free ROHS

Application

- Power Managerment in Telecom., Industrial Automation, CE
- Motor Driving in Power Tool, E-vehicle, Robotics
- Current Switching in DC/DC & AC/DC (SR) Sub-systems

Product Specification Classification

Part Number	Package	Marking	Pack
YFW100N035AT	TO-220AB	YFW 100N035AT XXXXX	1000PCS/Tape
YFW100N035AS-R	TO-263	YFW 100N035AS XXXXX	800PCS/Tube

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current, (@Note1)	I_D	140	A
Continuous Drain Current, @T_C=100℃ (@Note1)	I_D	88	A
Pulsed Drain Current (@Note2)	I_{DM}	426	A
Single Pulse Avalanche Energy (@Note3)	E_{AS}	151	mJ
Avalanche Current (@Note2)	I_{AS}	55	A
Total Power Dissipation[4] @T_C=25℃ (@Note4)	P_D	156	W
Total Power Dissipation[4] @T_C=100℃ (@Note4)		63	
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance, Junction-ambient	$R_{\theta JA}$	45	°C/W
Thermal Resistance, Junction-case	$R_{\theta JC}$	0.65	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition		Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA		BV_{DSS}	100	110	-	V
Gate -Body Leakage Current	V_{GS}=±20V, V_{DS}=0V		I_{GSS}	-	-	±100	nA
Zero Gate Voltage Drain Current	V_{DS} =80V, V_{GS} = 0V		I_{DSS}	-	-	1	μA
Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA		$V_{GS(th)}$	2.0	2.7	4.0	V
Drain-Source on-Resistance	V_{GS}=10V, I_D=20A	TO-220	$R_{DS(ON)}$	-	3.5	4.2	mΩ
		TO-263		-	3.5	4.2	
Forward Transconductance	V_{DS}=5V,I_D=20A		G_{FS}	-	106	-	S
Input Capacitance	V_{DS}=50V V_{GS}=0V f=1MHz		C_{iss}	-	3433	-	pF
Output Capacitance			C_{oss}	-	905	-	
Reverse Transfer Capacitance			C_{rss}	-	13	-	
Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz		R_g	-	2.1	-	Ω
Turn-on delay time	V_{GS}=10V V_{DS}=50V R_G=6Ω R_L=2.5Ω		$t_{d(on)}$	-	14.1	-	nS
Rise Time			T_r	-	34	-	
Turn-Off Delay Time			$t_{d(OFF)}$	-	60	-	
Fall Time			t_f	-	50	-	
Total Gate Charge	V_{DS}=50V V_{GS}=10V I_D=20A		Q_g	-	57	-	nC
Gate-Source Charge			Q_{gs}	-	11	-	
Gate-Drain Charge			Q_{gd}	-	16.1	-	
Diode Forward Voltage [2]	V_{GS}=0V , I_F=1A		V_{SD}	-	0.7	1.0	V
Continuous Source Current[1.5]	TC = 25°C		I_S	-	-	156	A
Body Diode Reverse Recovery Time	I_F=20A, dI_{SD}/dt=100A/μs TJ = 25°C,		t_{rr}	-	78	-	nS
Body Diode Reverse Recovery Charge			Q_{rr}	-	180	-	nC

Notes:
1. Computed continuous current assumes the condition of TJ_Max while the actual continuous current depends on the thermal & electro-mechanical application board design.
2. This single-pulse measurement was taken under TJ_Max = 150°C.
3. This single-pulse measurement was taken under the following condition [L = 100μH, VGS = 10V, VDS = 50V] while its value is limited by TJ_Max = 150°C.
4. The power dissipation PD is based on TJ_Max = 150°C.
5. This value is guaranteed by design hence it is not included in the production tes

Ratings and Characteristic Curves

Typical Electrical & Thermal Characteristics

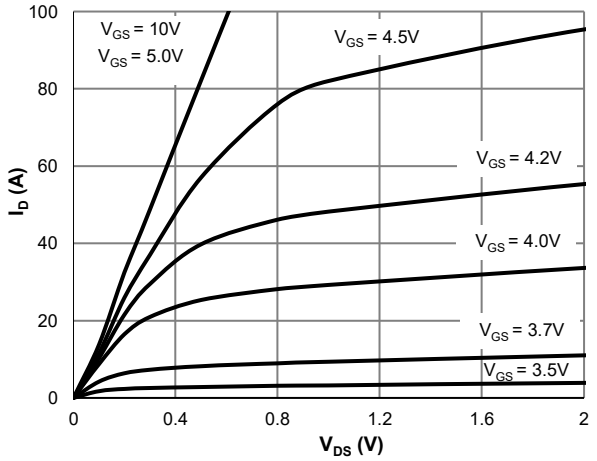


Figure 1: Saturation Characteristics

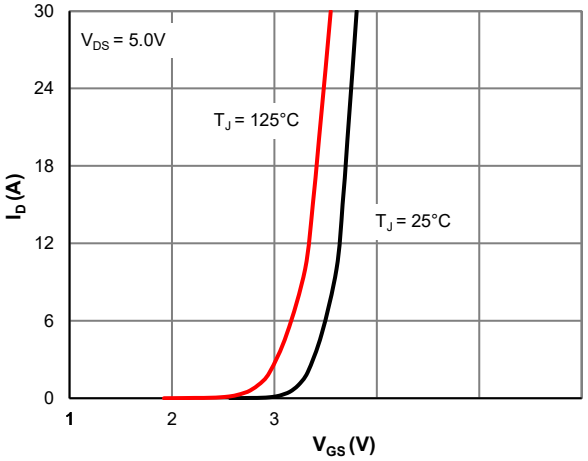


Figure 2: Transfer Characteristics

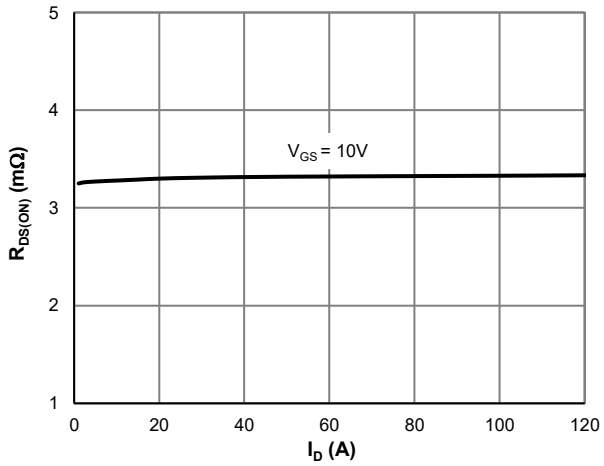


Figure 3: $R_{DS(ON)}$ vs. Drain Current

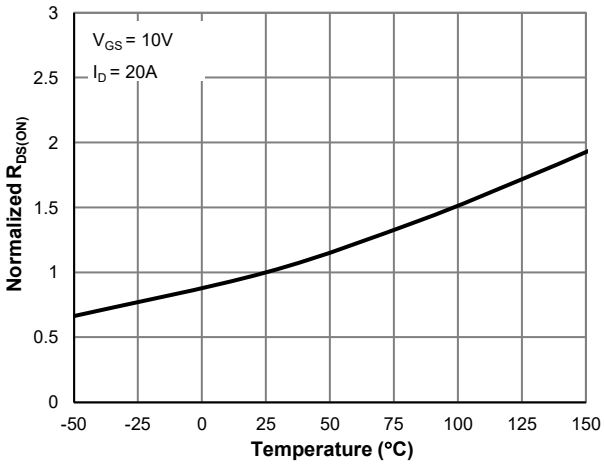


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

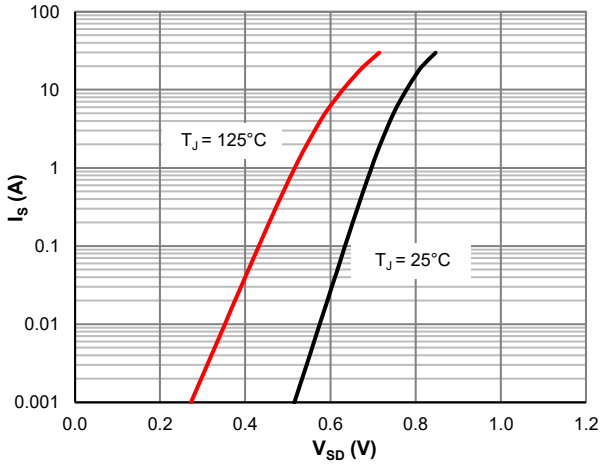


Figure 5: Body-Diode Characteristics

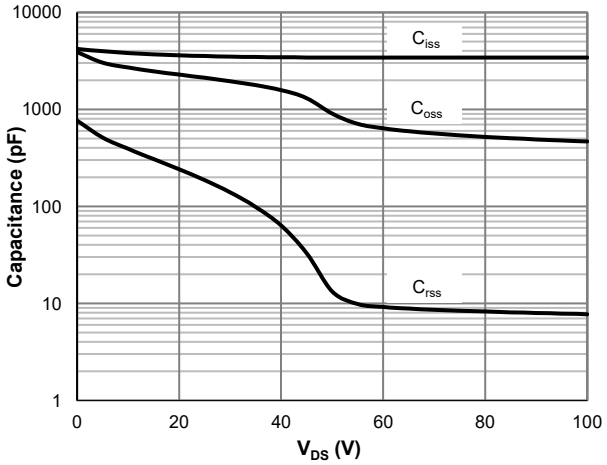


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

Typical Electrical & Thermal Characteristics

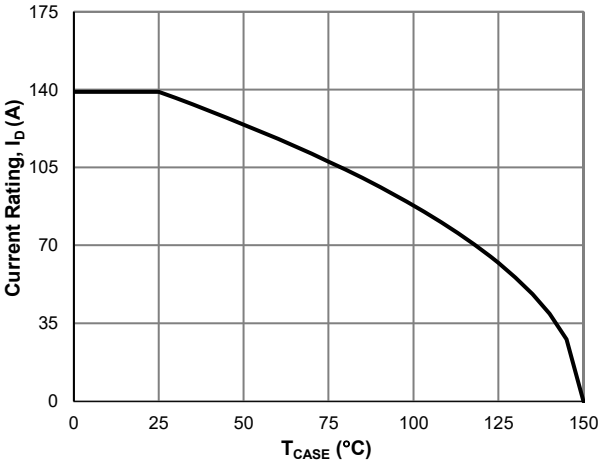


Figure 7: Current De-rating

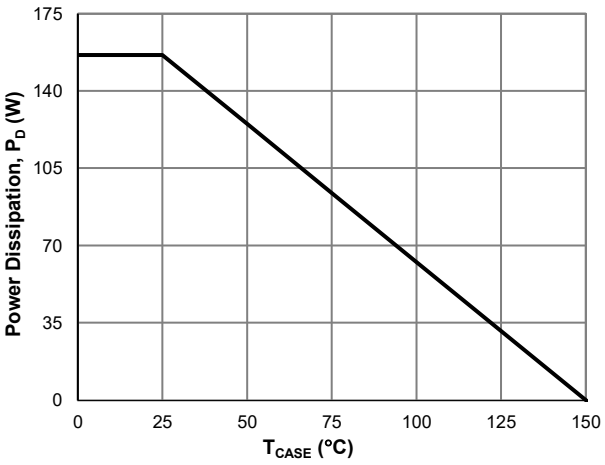


Figure 8: Power De-rating

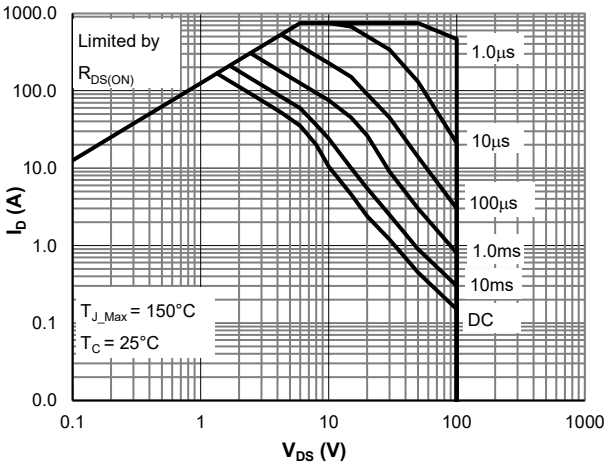


Figure 9: Maximum Safe Operating Area

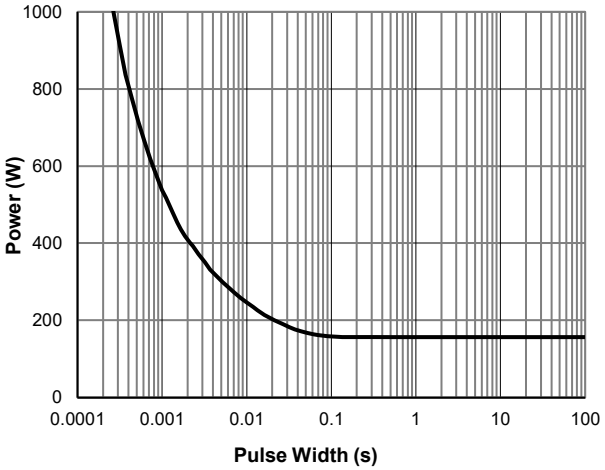


Figure 10: Single Pulse Power Rating, Junction-to-Case

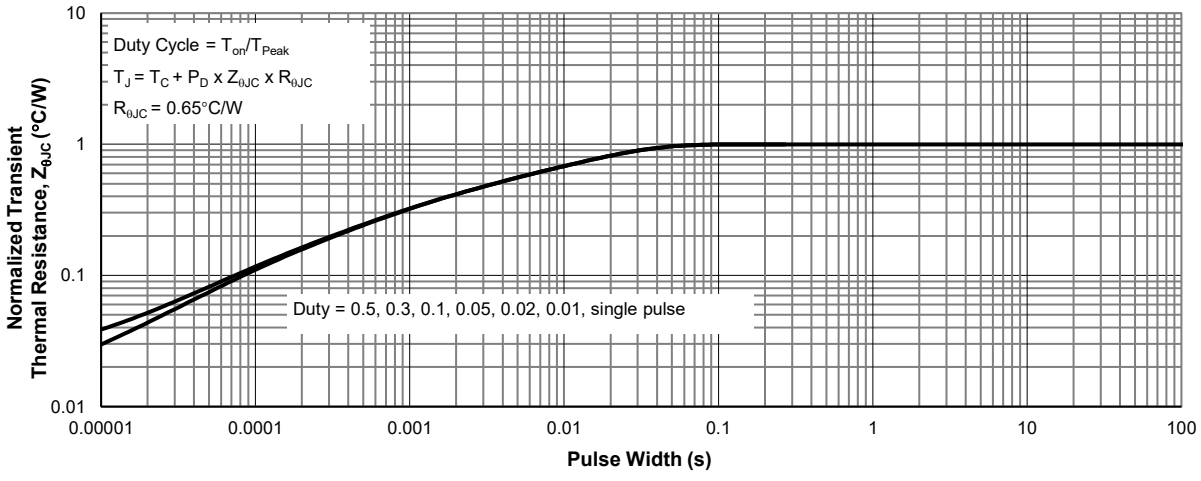


Figure 11: Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions Millimeters

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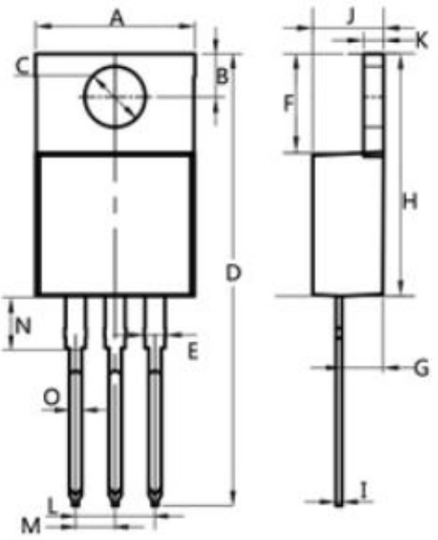

Dim.	Min.	Max.
A	10.15	10.35
B	2.65	2.95
C	3.70	3.90
D	28.5	29.5
E	1.30	1.45
F	6.35	6.55
G	2.9	3.3
H	15.0	16.0
I	0.38	0.42
J	4.45	4.55
K	1.25	1.35
L	Typ 5.08	
M	Typ 2.54	
N	3.1	3.3
O	0.76	0.84
All Dimensions in millimeter		

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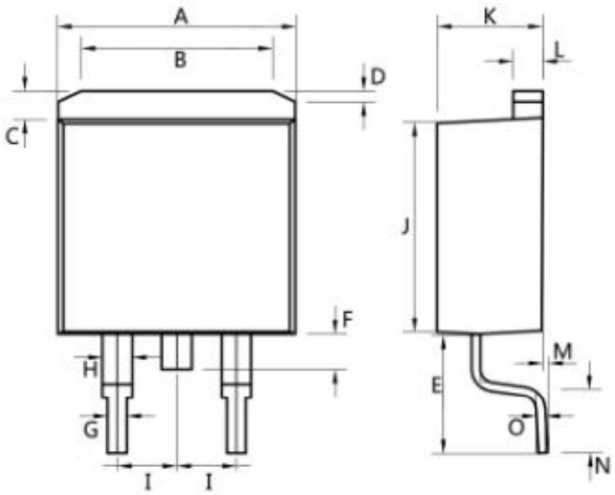

Dim.	Min.	Max.
A	10.1	10.2
B	7.4	7.6
C	1.3	1.5
D	0.55	0.75
E	5.0	6.0
F	1.4	1.6
G	0.78	0.86
H	1.2	1.3
I	Typ2.54	
J	8.4	8.6
K	4.45	4.55
L	1.25	1.35
M	0.02	0.1
N	2.4	2.8
O	0.36	0.40
All Dimensions in millimeter		