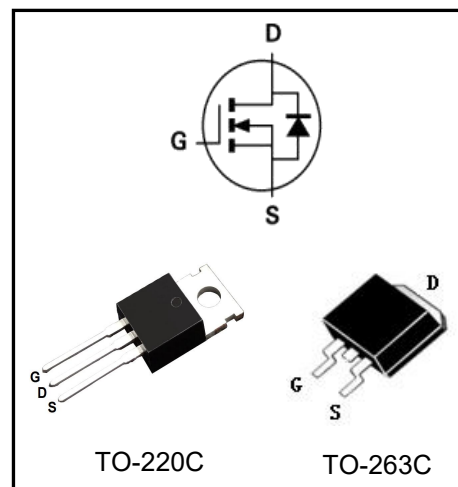


40V N-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

I_D	140A
V_{DS}	40V
R_{DS(on)}-typ(@V_{GS}=10V)	<2.7mΩ(Type:2.0 mΩ)



FEATURES

Adopt advanced trench technology to provide excellent R_{DS(ON)}, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

APPLICATIONS

- ◆ Battery protection
- ◆ Load switch
- ◆ Uninterruptible power supply

MECHANICAL DATA

- ◆ Case: Molded plastic
- ◆ Mounting Position: Any
- ◆ Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆ Lead free in compliance with EU RoHS 2011/65/EU directive
- ◆ Solder bath temperature 275°C maximum, 10s per JESD 22-B106

Product specification classification

Part Number	Package	Marking	Pack
YFW140N04AC	TO-220C	YFW 140N04AC XXXXX	50PCS/Tube/1000pcs/box
YFW140N04ASC	TO-263C	YFW 140N04ASC XXXXX	800pcs/Reel/4000pcs/carton

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	40	V
Gate-Source Voltage	V _{GS}	±20	V
Continue Drain Current	I _D	140	A
Pulsed Drain Current (Note1)	I _{DM}	380	A
Power Dissipation	P _D	96	W
Single Pulse Avalanche Energy (Note1)	E _{AS}	500	mJ
Operating Temperature Range	T _J	150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	R _{θJC}	1.3	°C/W
Thermal Resistance, Junction to Ambient	R _{θJA}	62	°C/W

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

Electrical Characteristics at Tc=25°C unless otherwise specified

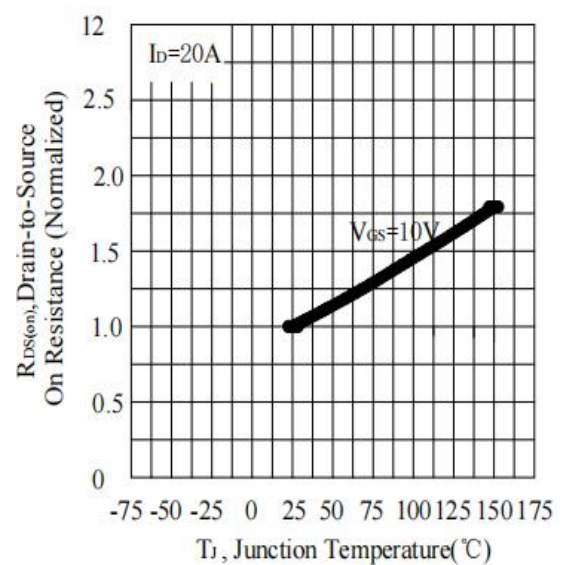
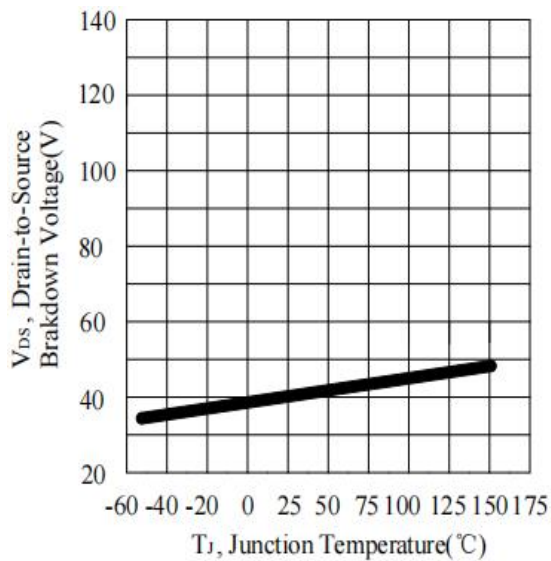
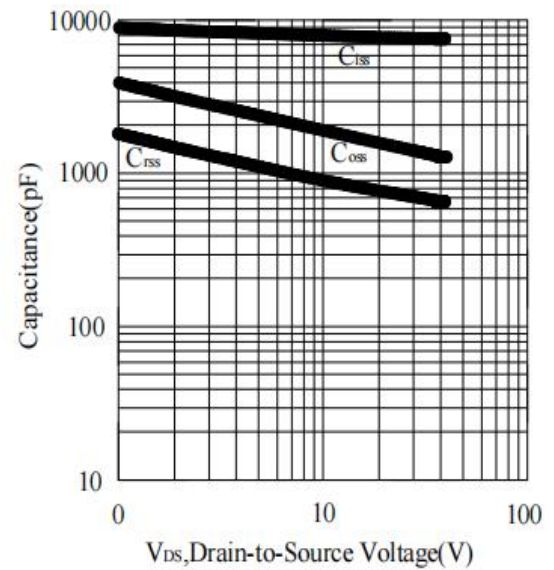
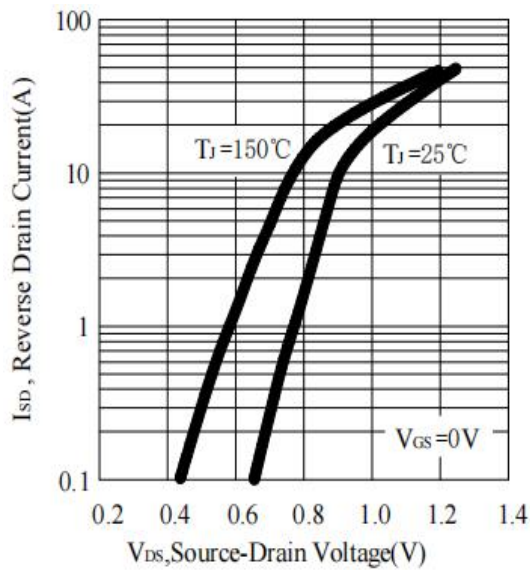
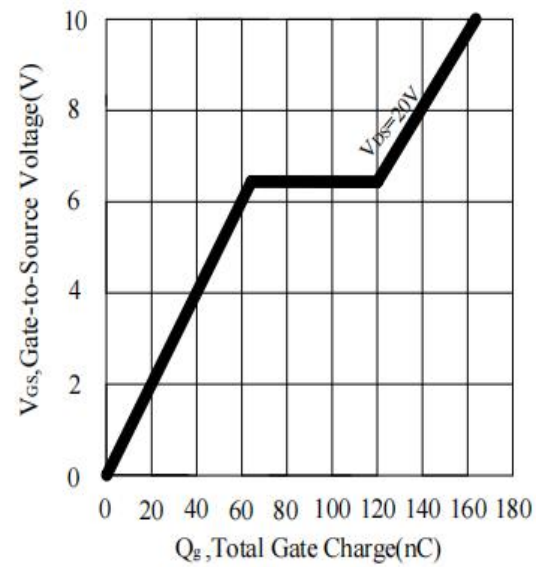
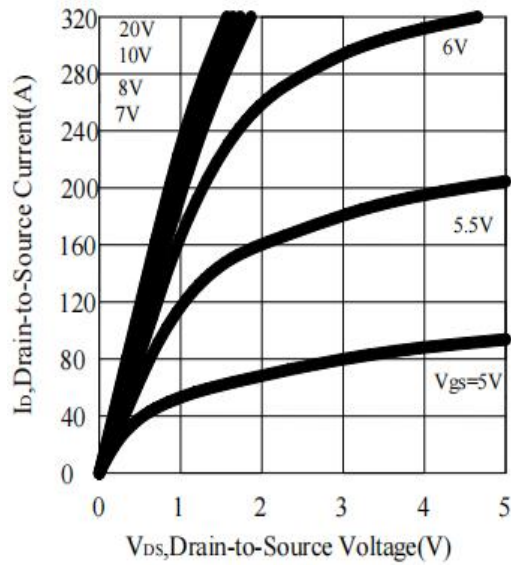
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	BV_{DSS}	40	-	-	V
Drain-Source Leakage Current	$V_{DS} = 40\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	$V_{GS(th)}$	1	-	2.2	V
Drain-Source On-State Resistance	$V_{GS} = 10\text{ V}, I_D = 20\text{ A}$	$R_{DS(on)}$	-	2.0	2.7	m Ω
	$V_{GS} = 4.5\text{ V}, I_D = 15\text{ A}$		-	2.5	3.5	m Ω
Input Capacitance	$V_{DS}=25\text{ V}, V_{GS}=0\text{ V}, f=1\text{ MHz}$	C_{iss}	-	7800	-	pF
Output Capacitance		C_{oss}	-	1256	-	pF
Reverse Transfer Capacitance		C_{rss}	-	780	-	pF
Turn-on Delay Time(Note2)	$V_{DD}=20\text{ V}, V_{GS}=10\text{ V}, R_G=3.7\text{ }\Omega, I_D=70\text{ A}$	$t_{d(ON)}$	-	25	-	ns
Rise Time(Note2)		t_r	-	80	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	85	-	ns
Fall Time(Note2)		t_f	-	42	-	ns
Total Gate Charge(Note2)	$V_{DS}=20\text{ V}, V_{GS}=4.5\text{ V}, I_D=70\text{ A}$	Q_G	-	170	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	52	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	70	-	nC

Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

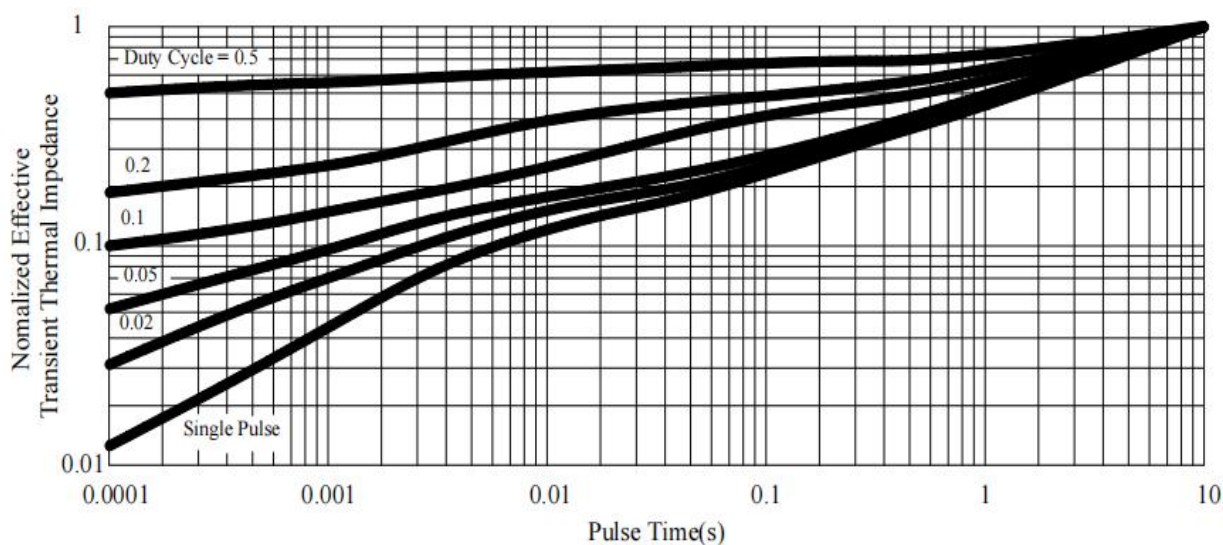
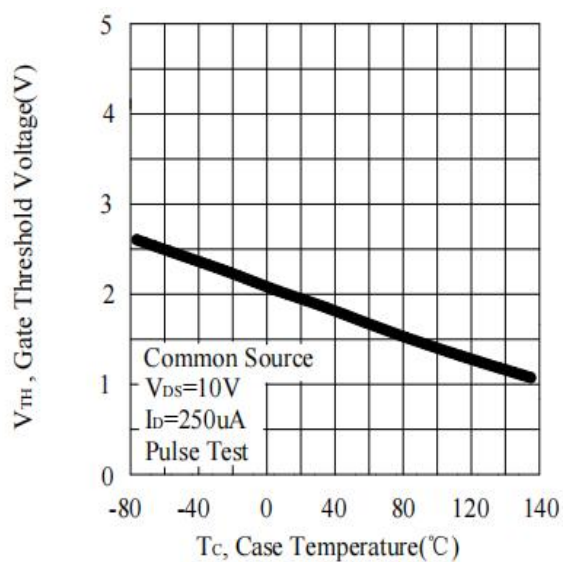
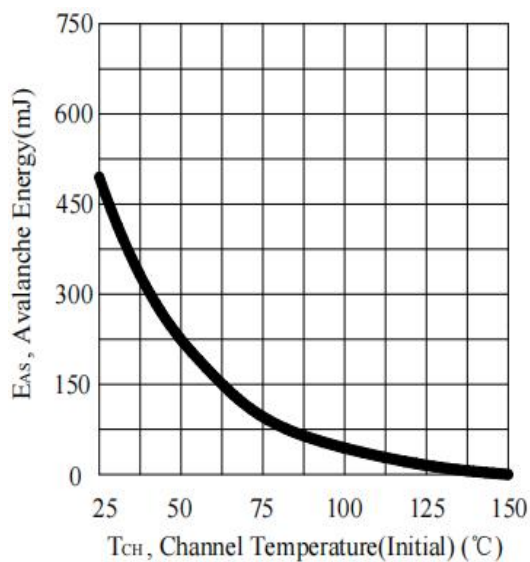
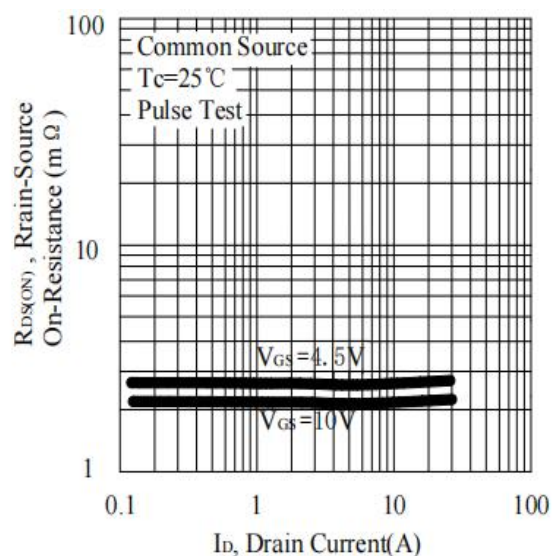
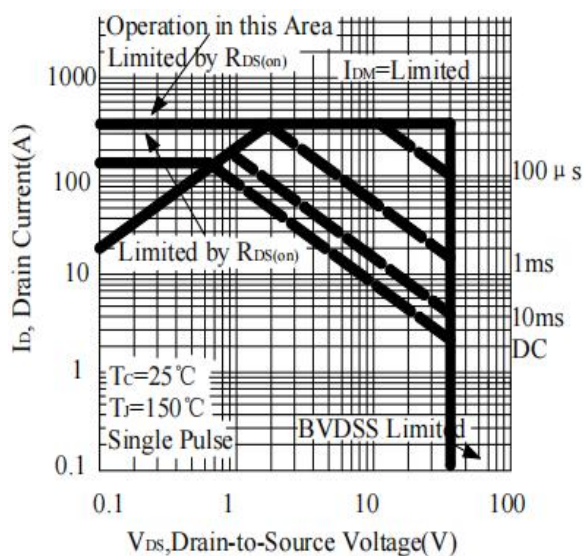
Characteristics	Test Condition	Symbo	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	140	A
Drain-Source Diode Forward Voltage	$V_{GS}=0\text{ V}, I_S=20\text{ A}, T_J=25^\circ\text{C}$	V_{SD}	-	-	1.2	V
Reverse Recovery Time(Note2)	$T_J = 25^\circ\text{C}, I_F = 40\text{ A}$ $di / dt = 100\text{ A}/\mu\text{s}$	t_{rr}	-	31	-	ns
Reverse Recovery Charge(Note2)		Q_{rr}	-	27	-	nC

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES

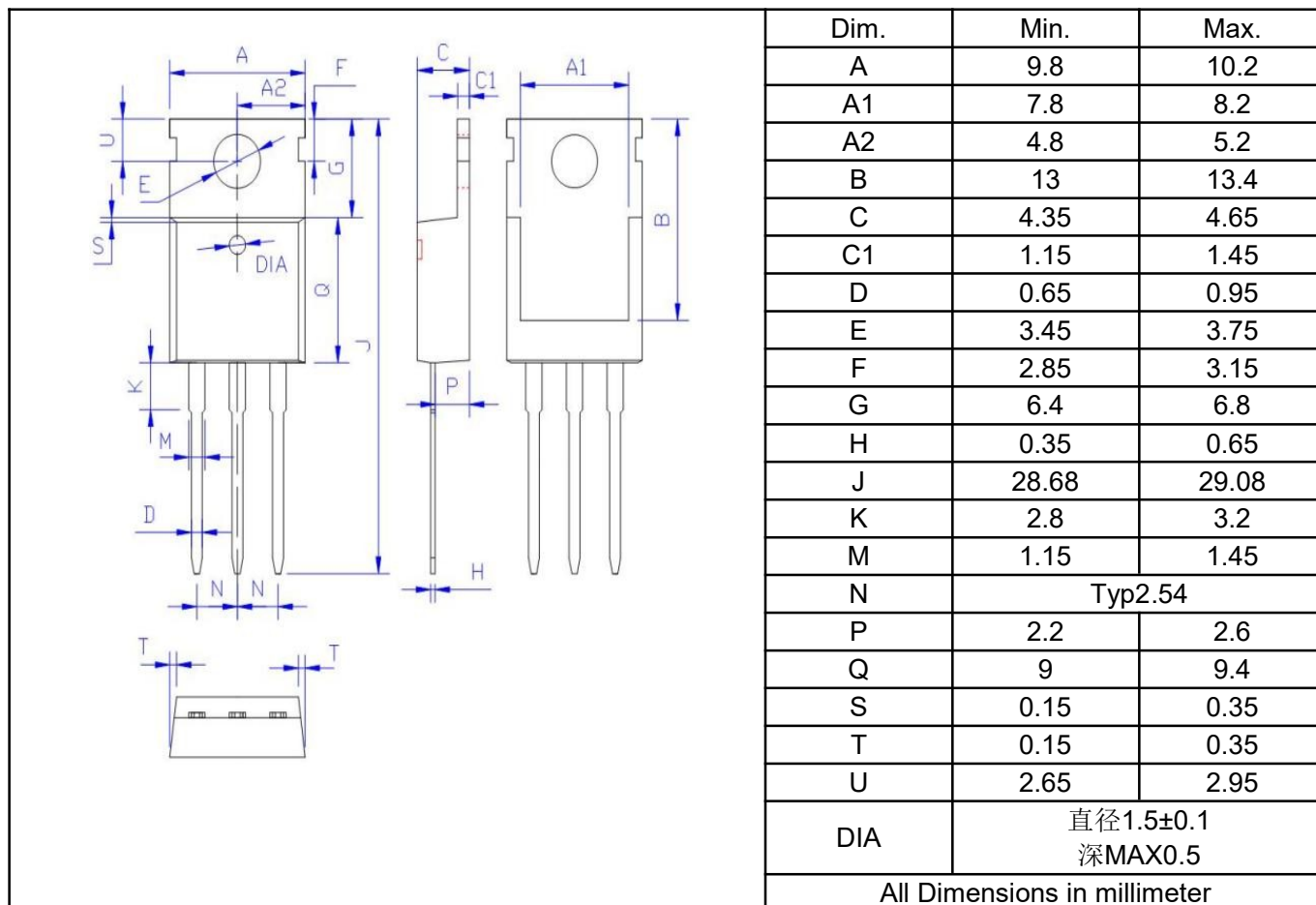


RATINGS AND CHARACTERISTIC CURVES

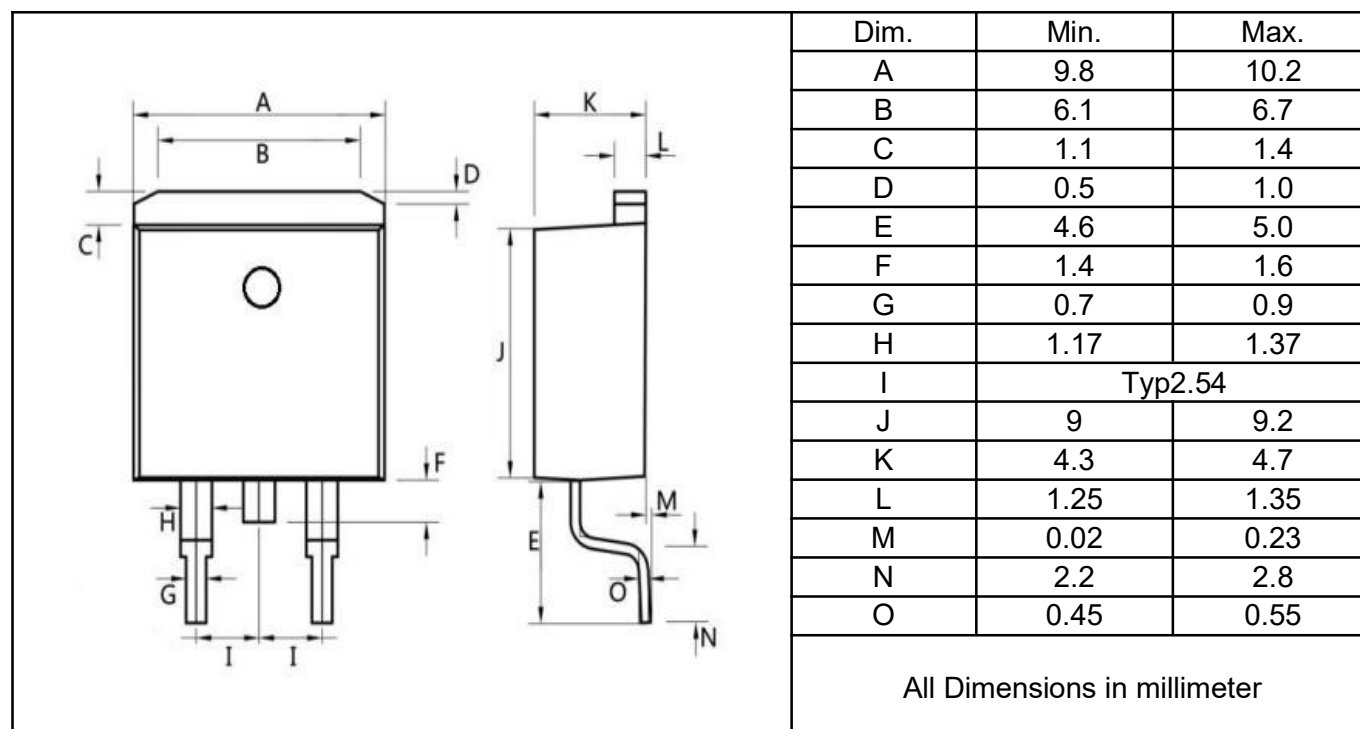


Package Outline Dimensions millimeters

TO-220C



TO-263C



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