JUXIN semiconductor

JXT30N06D

60V N沟道增强型功率场效应管

60V N-CHANNEL ENHANCEMENT MODE POWER MOSFET

30A/60V

Discription

JXT30N06D This N-Channel enhancement mode power MOSFET is produced using advanced trench technology to provide high performance in on state resistance, switching performance and reliability Low RDS(ON), low gate charge can be offering superior benefit in the application.

Features

- V_{DS}=60V, I_D=30A
- $R_{DS(on)（MAX）}$=29mΩ@V_{GS}=10V
- $R_{DS(on)（MAX）}$=40mΩ@V_{GS}=4.5V

100% UIS TESTED!

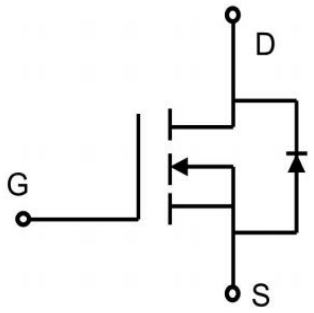
100% ΔVds TESTED!

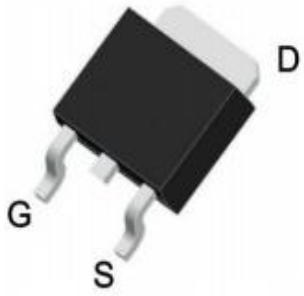
Applications

- Power faction correction (PFC)
- Switched mode power supplies (SMPS)
- Uninterruptible power supply (UPS)
- LED lighting power

Note

- Products made by JUXIN semiconductor





TO-252(DPAK)

ORDERING INFORMATION

Part No.	Package	Marking	Material	Packing
JXT30N06D	TO-252(DPAK)	JXT30N06D	Pb free	Tape and Reel

ABSOLUTE MAXIMUM RATINGS（T_J=25℃ unless otherwise noted）

Characteristics		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25℃	I_D	30	A
	T_C=100°C		20	
Drain Current Pulsed(Note 1)		I_{DM}	120	A
Power Dissipation（T_C=25°C）		P_D	75	W
-Derate above 25°C			0.58	W/°C
Single Pulsed Avalanche Energy (Note 2)		E_{AS}	18.8	mJ
Operation Junction Temperature Range		T_J	-55 to+175	℃
Storage Temperature Range		T_{STG}	-55 to+175	℃

THERMAL CHARACTERISTICS

Characteristics	Symbol	MAX	Unit
Thermal Resistance, Junction-to-Case(Note 1)	$R_{\theta JC}$	2.7	°C/W
Thermal Resistance, Junction-to-Ambient(Note 1)	$R_{\theta JA}$	55	°C/W

NOTE:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. EAS condition:Starting T_J=25℃,V_{DD}=30V,VG=10V,L=0.5mH,Rg=25Ω,I_{AS}=9.6A.

ELECTRICAL CHARACTERISTICS

Off Characteristics

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain -Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250uA	60	--	--	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=60V， V_{GS}=0V	--	--	1.0	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=+20V,V_{DS}=0V	--	--	100	nA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=-20V,V_{DS}=0V	--	--	-100	nA

On Characteristics

Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250uA	1.0	1.6	2.5	V
Static Drain- Source On State Resistance（Note3）	$R_{DS(on)}$	V_{GS}=10V, I_D=15A	--	26	29	mΩ
		V_{GS}=4.5V, I_D=15A		30	40	

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz	--	1050	--	pF
Output Capacitance	C_{0ss}		--	72	--	
Reverse Transfer Capacitance	C_{rss}		--	64	--	

Switching Characteristics

Turn-on Delay Time	$t_{d(on)}$	V_{DD}=30V, V_{GS}=10V, R_G=1.8Ω I_D=15A	--	7.5	--	ns
Turn-on Rise Time	t_r		--	21	--	
Turn-off Delay Time	$t_{d(off)}$		--	16	--	
Turn-off Fall Time	t_f		--	23.5	--	
Total Gate Charge	Q_g	VDD=30V, VGS=10V, ID=15A	--	25	--	nC
Gate-Source Charge	Q_{gs}		--	4.5	--	
Gate-Drain Charge	Q_{gd}		--	6.5	--	

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	I_S	Integral Reverse P-N Junction Diode in the MOSFET	--	--	30	A
Pulsed Source Current	I_{SM}		--	--	120	
Diode Forward Voltage	V_{SD}	I_S=30A, V_{GS}=0V	--	0.90	1.2	V
Reverse Recovery Time	Trr	I=30A,V_{GS}=0V, dIF/dt=100A/μS	--	29	--	ns
Reverse Recovery Charge	Qrr		--	45	--	μC

NOTE:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. EAS condition:Starting T_J=25°C,V_{DD}=30V,VG=10V,L=0.5mH,Rg=25Ω,I_{AS}=8.6A.
3. Pulse test:pulse width ≤300us,duty cycle≤0.5%.

Typical Performance Characteristics

Figure1: Output Characteristics

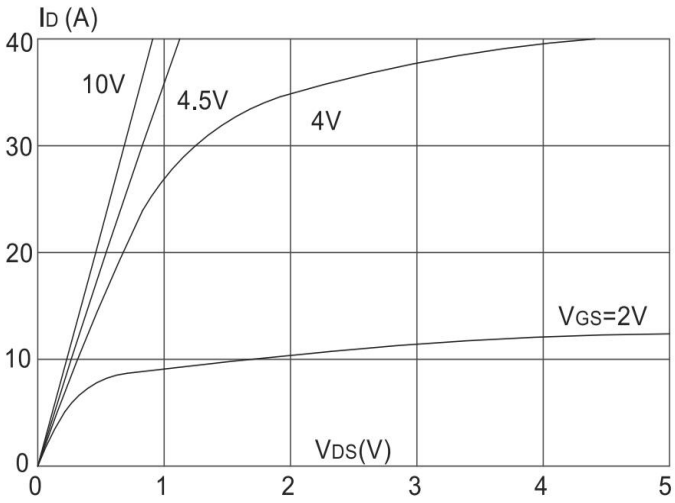


Figure 2: Typical Transfer Characteristics

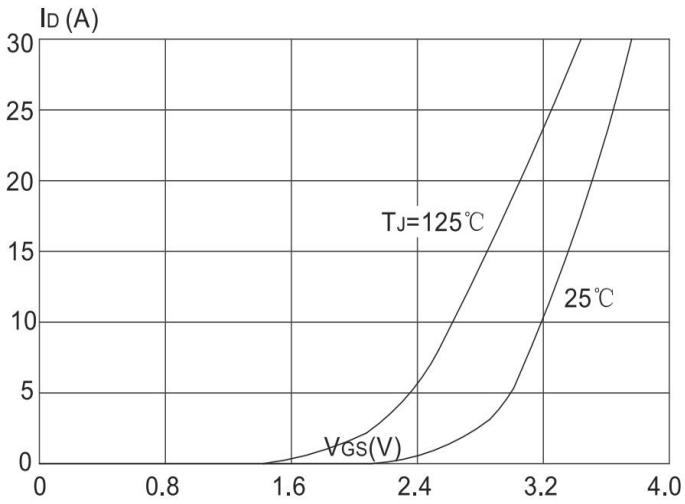


Figure 3: On-resistance vs. Drain Current

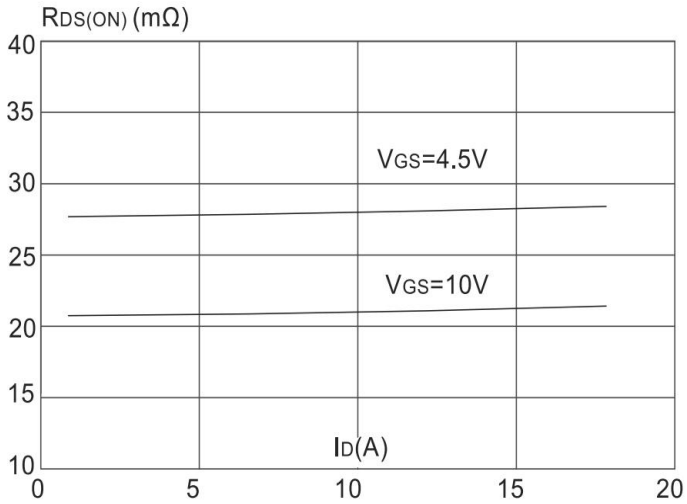


Figure 4: Body Diode Characteristics

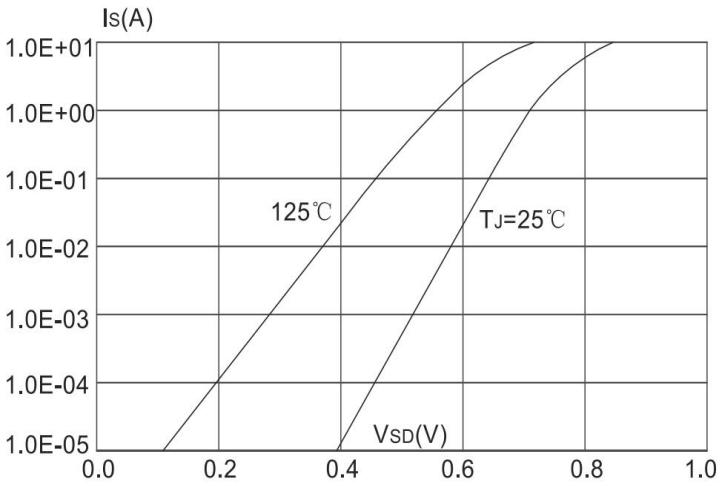


Figure 5: Gate Charge Characteristics

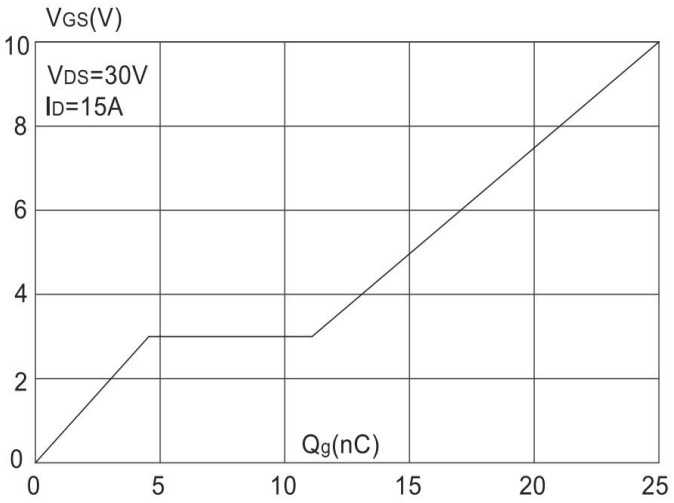
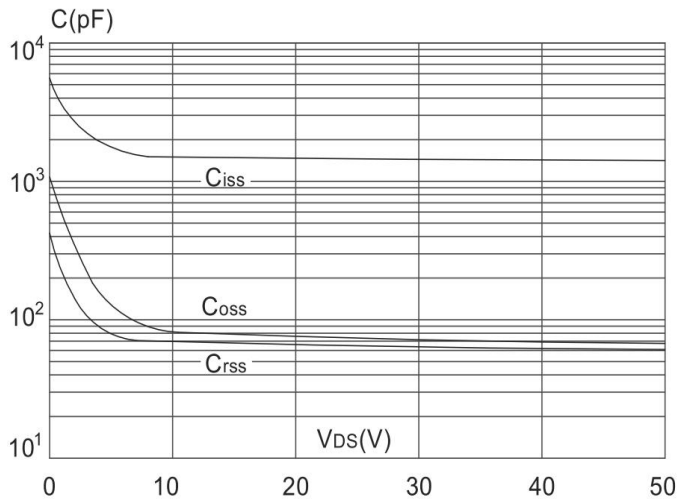


Figure 6: Capacitance Characteristics



The curve above is for reference only.

Typical Performance Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

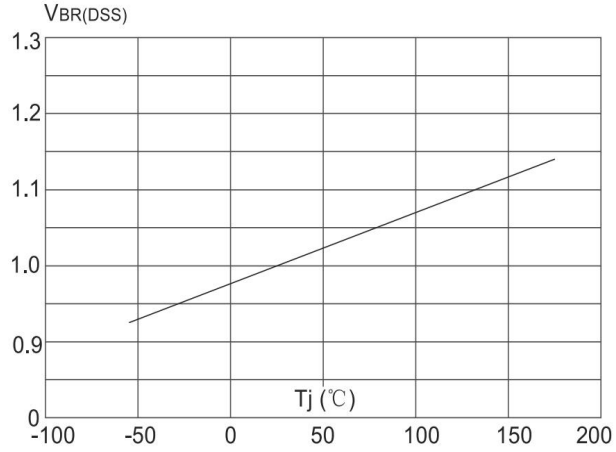


Figure 8: Normalized on Resistance vs. Junction Temperature

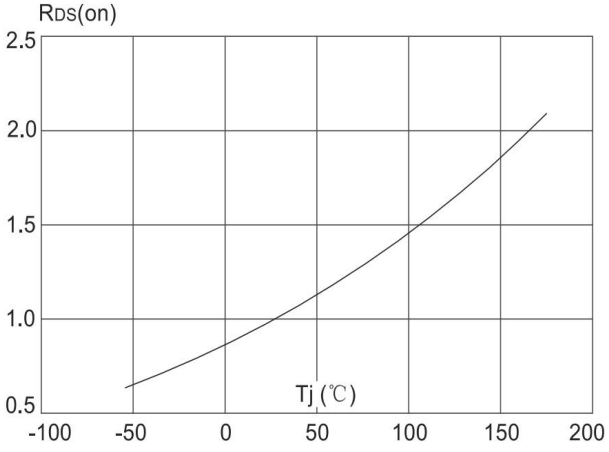


Figure 9: Maximum Safe Operating Area

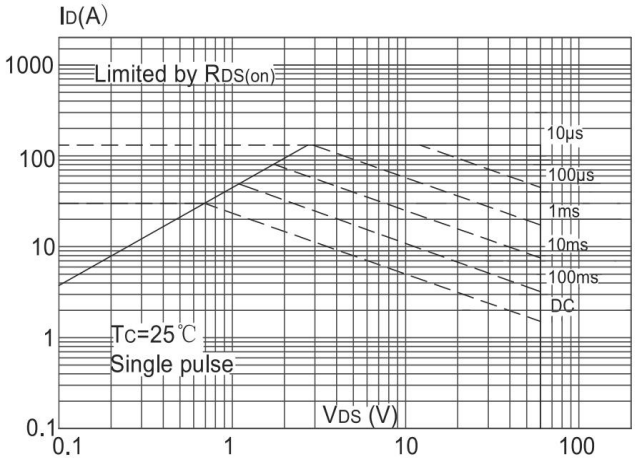


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

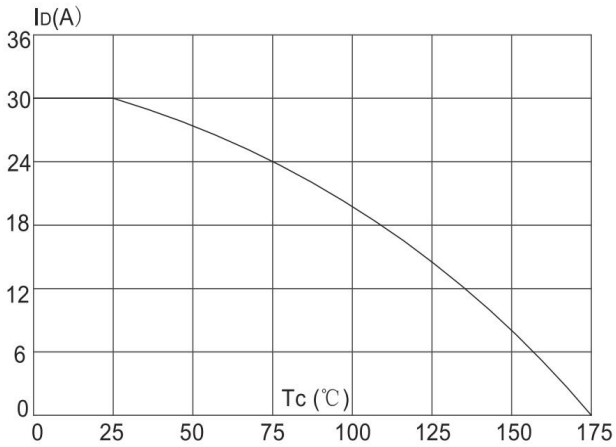
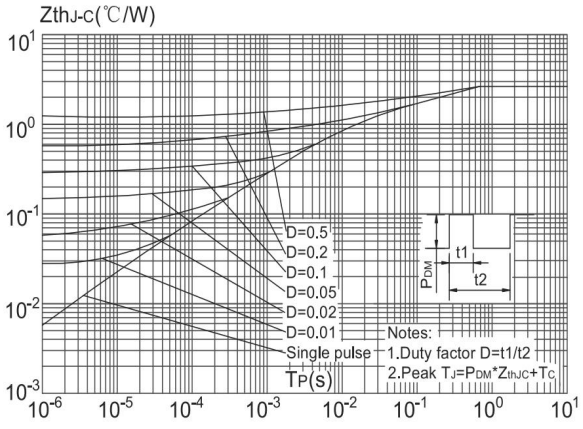


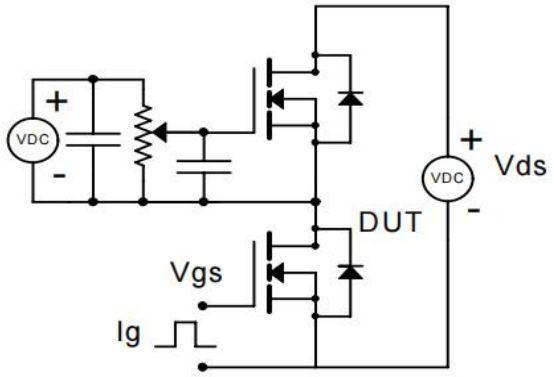
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

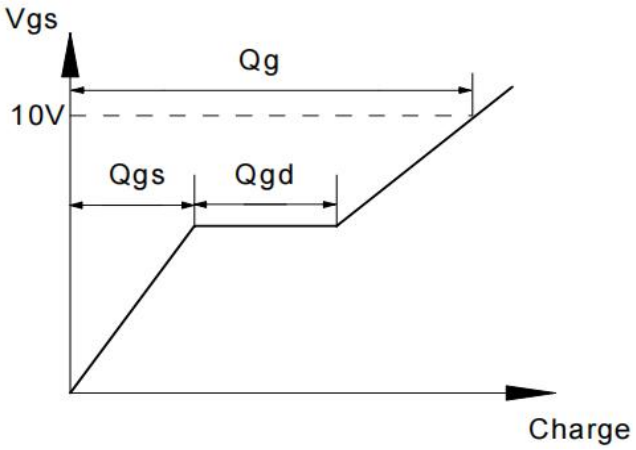


The curve above is for reference only.

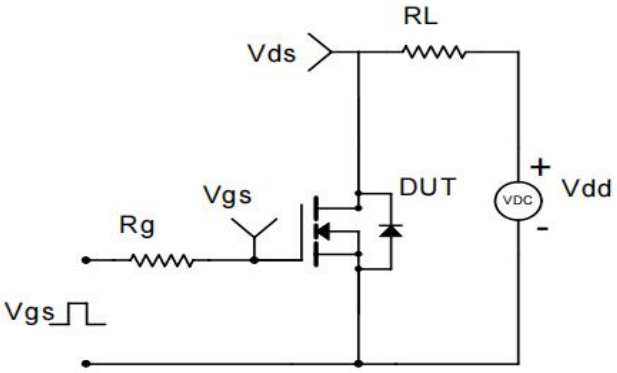
Test Circuit

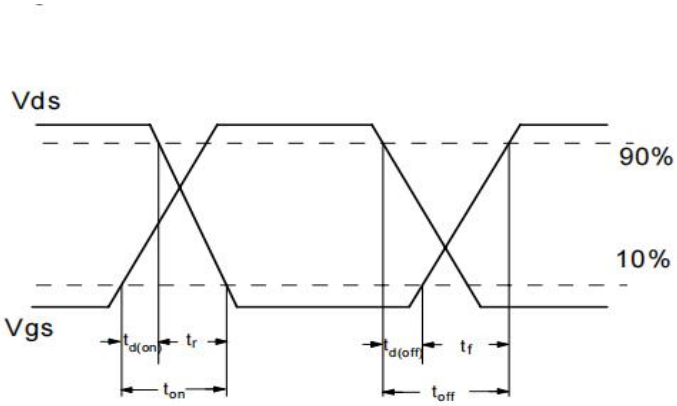
Gate Charge Test Circuit & Waveform



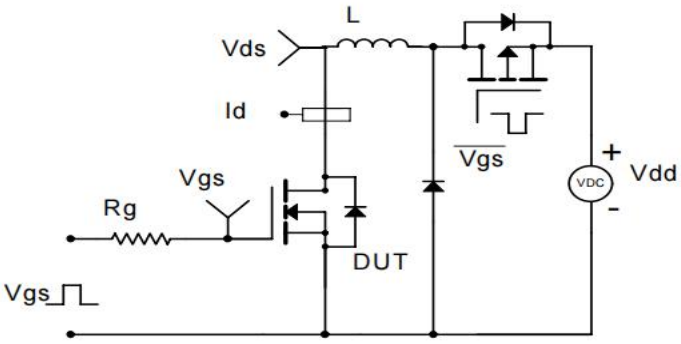


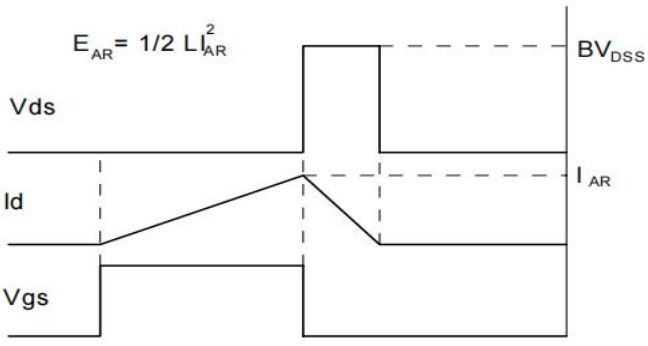
Resistive Switching Test Circuit & Waveform





Unclamped Inductive Switching (UIS) Test Circuit & Waveforms





Package Dimensions of TO-252

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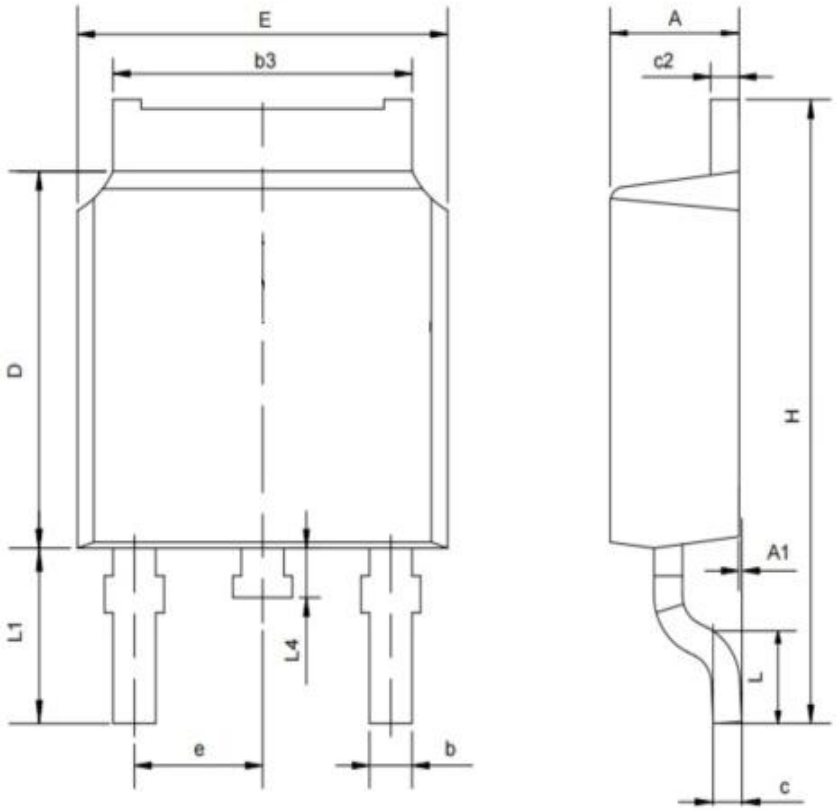
Unit:mm



SYMBOL	MILIMETER	
	MIN	MAX
A	2.10	2.50
A1	0.00	0.13
b	0.66	0.89
b3	5.10	5.55
c	0.40	0.65
c2	0.40	0.65
D	5.80	6.40
E	6.30	6.90
e	2.286BSC	
H	9.50	10.70
L	1.40	1.70
L1	2.70REF	
L4	0.60	1.00

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