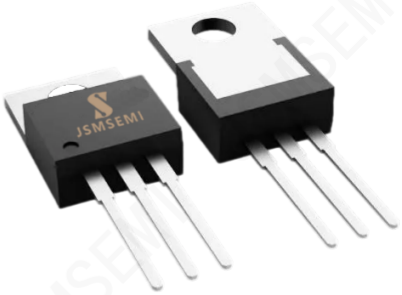
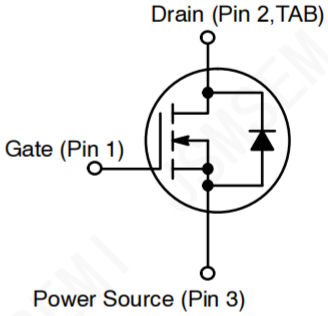
Product Summary

- V_{DS} 100V
- I_D 100A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜9.0mΩ
- 100% EAS Tested
- 100% ▽V_{DS} Tested



General Description

- Trench Power MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free



Applications

- Power switching application
- Uninterruptible power supply
- DC-DC convertor
- Motor drivers

Absolute Maximum Ratings (T_A=25°C,unless otherwises pecified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C[Note1]	I_D	100	A
	T_C=100°C		70	A
	T_A=25°C[Note4]		17	A
Pulsed Drain Current [Note2]		$I_{D,pulse}$	600	A
Avalancheenergy,single pulse[Note3]		E_{AS}	110	mJ
Power Dissipation	T_C=25°C	P_D	256	W
	T_A=25°C[Note4]		3.1	W
Operatingand Storage Temperature Range		T_J,T_{SGT}	-55 to150	°C

Thermal Resistance

Parameter	Symbol	Min	Typ	Max	Unit
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	-	-	0.8	°C/W
Thermal Resistance,Junction-to-Ambitent[Note4]	$R_{\theta JA}$	-	-	40	°C/W

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship, Quantity	Green
IRFB4410PBF-JSM	TO-220-3	FB4410	-55 to 150°C	1	TUBE,1000	Rohs

Electrical Characteristics (T_J=25ºC,unless otherwises pecified)

Parameter	Symbol	TestConditions	Min	Typ	Max	Unit
Statistic Characteristics						
Drain-Source Breakdown Voltage	B_{VDSS}	V_{GS}=0V,ID=250uA	100	-	-	V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,VDS=0V	-	-	±100	nA
ZeroGate Voltage Drain Current	I_{DSS}	V_{DS}=100V,VGS=0V	-	-	1	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS,ID=250uA	2.2	3.0	3.8	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V,ID=50A	-	8.0	9.0	mΩ
Gate Resistance	Rg	f=1MHz	-	1.5	-	Ω
Forward Transconductance[Note5]	gfs	V_{DS}=5V,I_D=50A	-	90	-	S
Dynamic Characteristics[Note5]						
Input Capacitance	Ciss	V_{GS}=0V V_{DS}=50V f=1MHz	-	4646	-	pF
Output Capacitance	Coss		-	580	-	pF
Reverse Transfer Capacitance	Crss		-	30	-	pF
Turn-on Delay Time	td(on)	V_{DS}=50V I_D=50A V_{GS}=10V R_G=6Ω	-	53	-	ns
Rise Time	tr		-	88	-	ns
Turn-off Delay Time	td(off)		-	85	-	ns
Fall Time	tf		-	22	-	ns
Gate Charge Characteristics						
Total Gate Charge	Qg	V_{DS}=50V V_{GS}=10V I_D=50A	-	69	-	nC
Gate to Source Charge	Qgs		-	22	-	nC
Gate to Drain Charge	Qgd		-	17	-	nC
Reverse Diode Characteristics[Note5]						
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_F=50A	-	0.92	1.2	V
Reverse recovery time	trr	I_F=50A,V_{DS}=50V di/dt=100A/μs	-	72	-	ns
Reverse recovery charge	Qrr		-	138	-	nC

Notes:

1.Package limited
2.Pulse width limited by maximum junction temperature
3.V_{DS}=50V,V_{GS}=10V,L=0.1mH
4.RθJA is determined with the device mounted on a 1 in^2pad 2 oz copper pad on a 1.5x1.5 in.board of FR-4 material
5.Guaranteed by design,not subject to production testing

Electrical Characteristics Diagrams

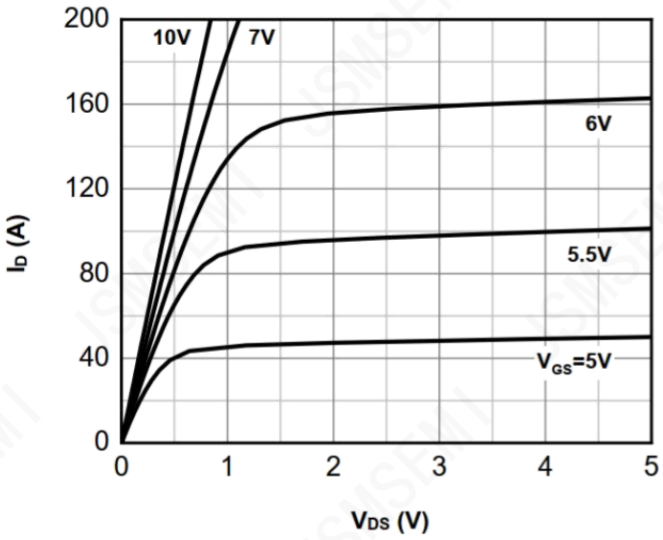


Figure 1: Typ. Output Characteristics

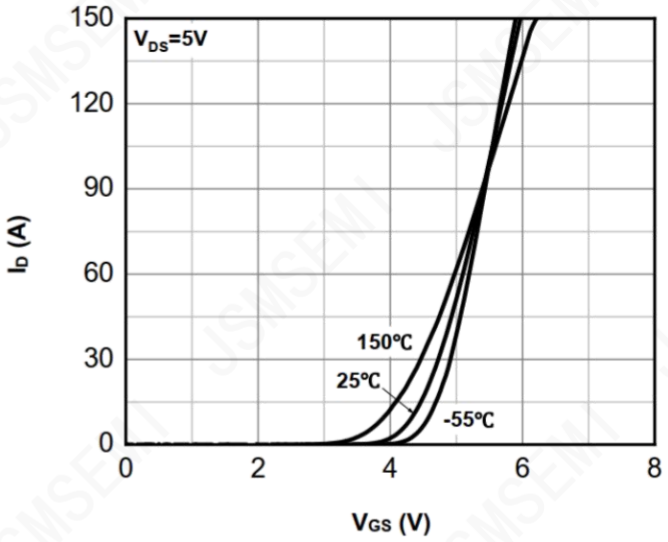


Figure 2: Typ. Transfer Characteristics

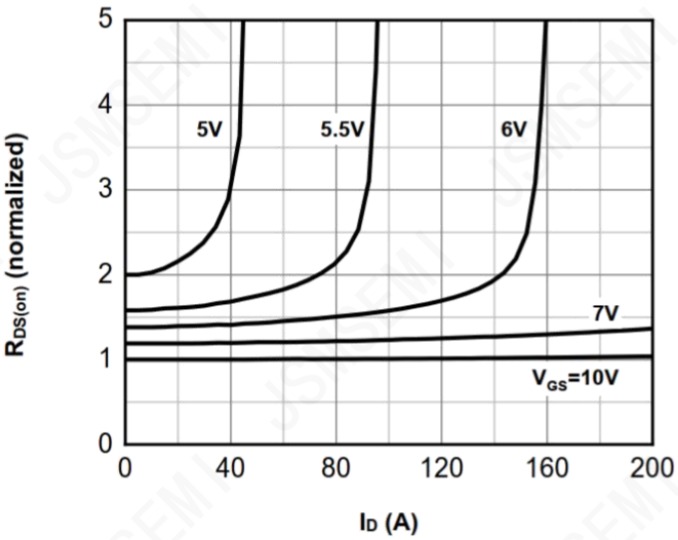


Figure 3: Normalized On-Resistance vs. Drain Current

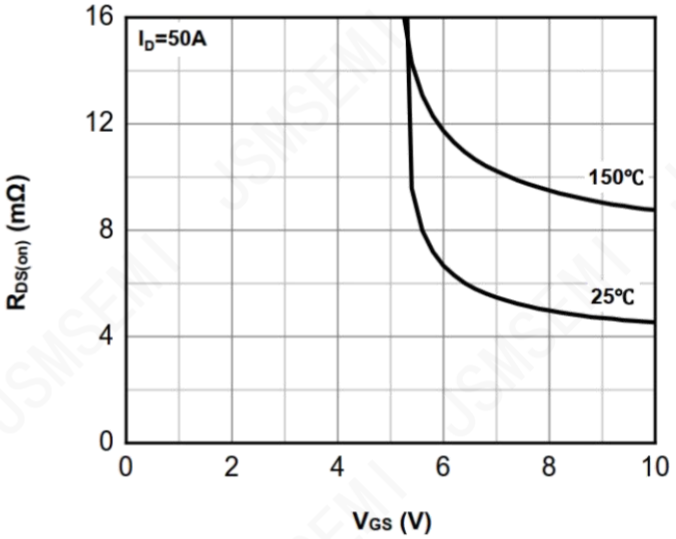


Figure 4: Typ. On-Resistance vs. Gate-source Voltage

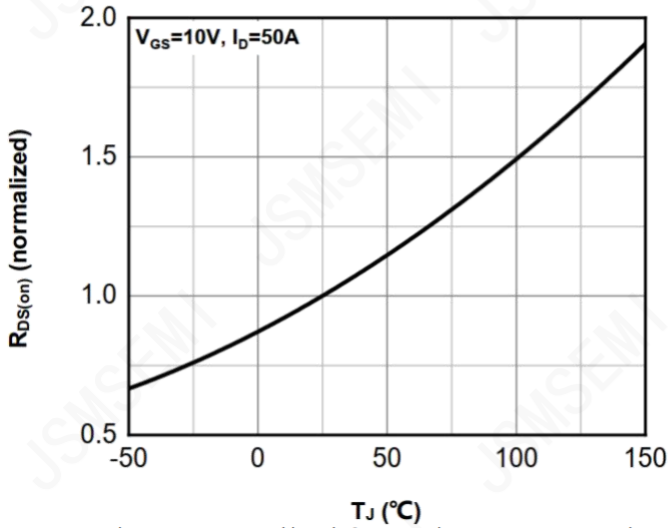


Figure5:Normalized On-Resistance vs. Junction Temperature

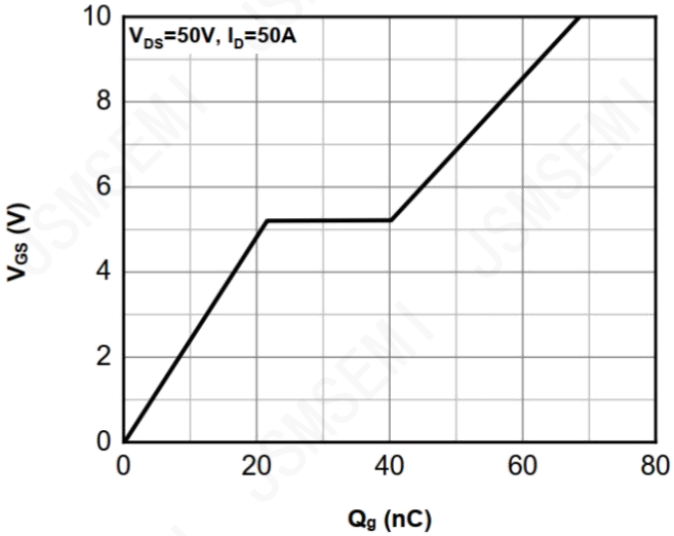


Figure 6: Typ.Gate Charge

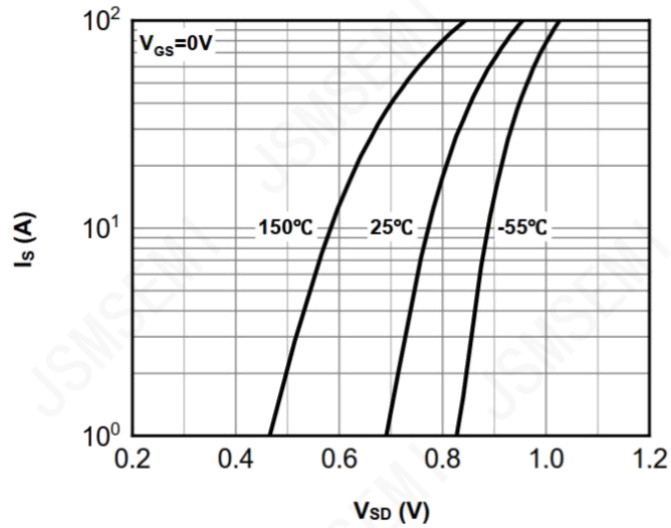


Figure 7:Typ. Forward Characteristics of Body Diode

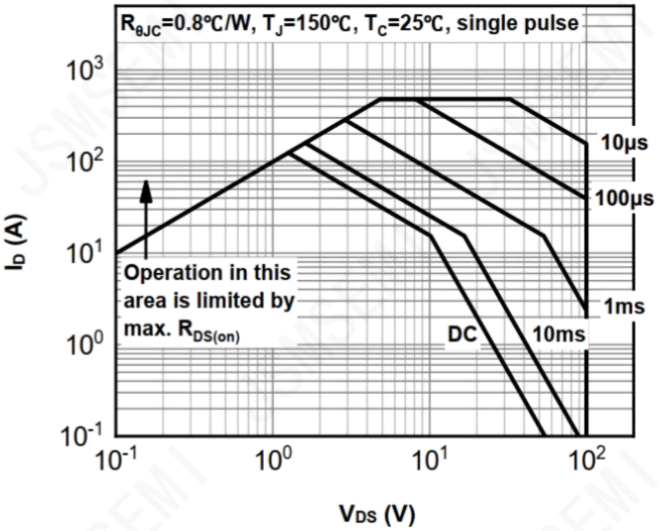


Figure 8: Safe Operating Area

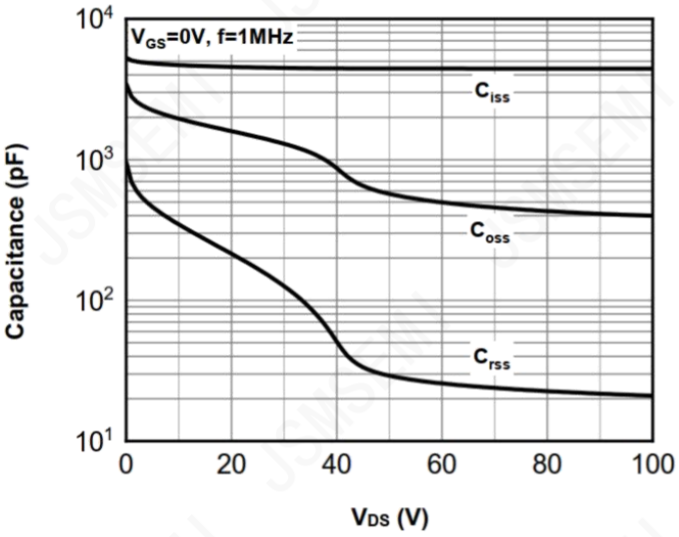


Figure 9: Typ. Capacitances

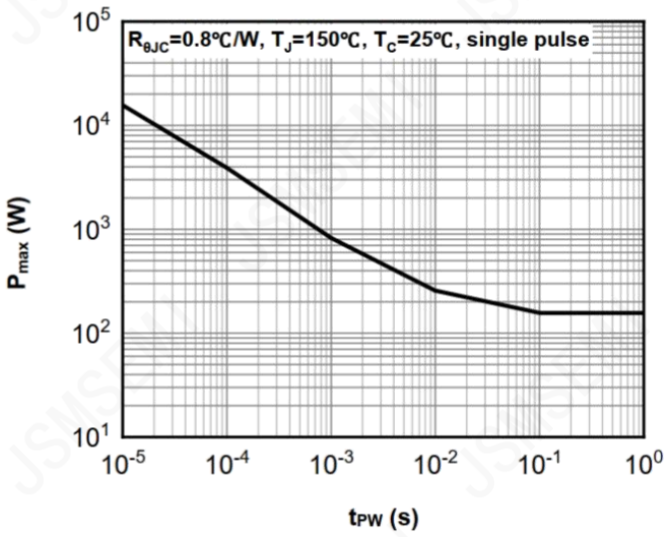


Figure 10: Single Pulse Maximum Power Dissipation

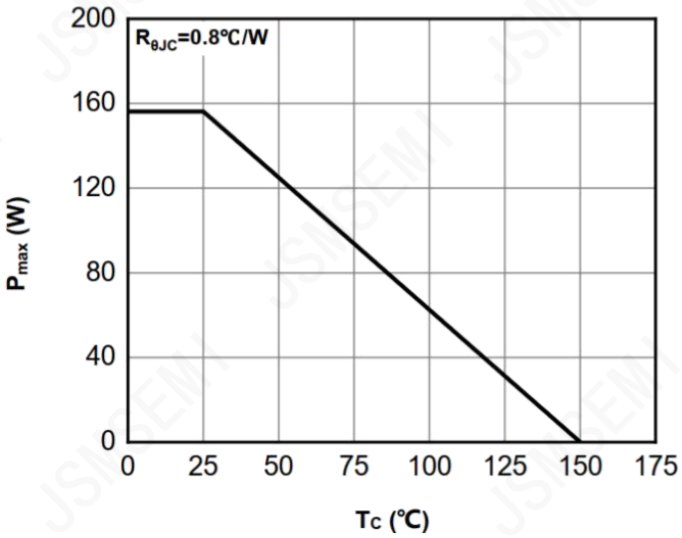


Figure 11: Max. Power Dissipation vs. Case Temperture

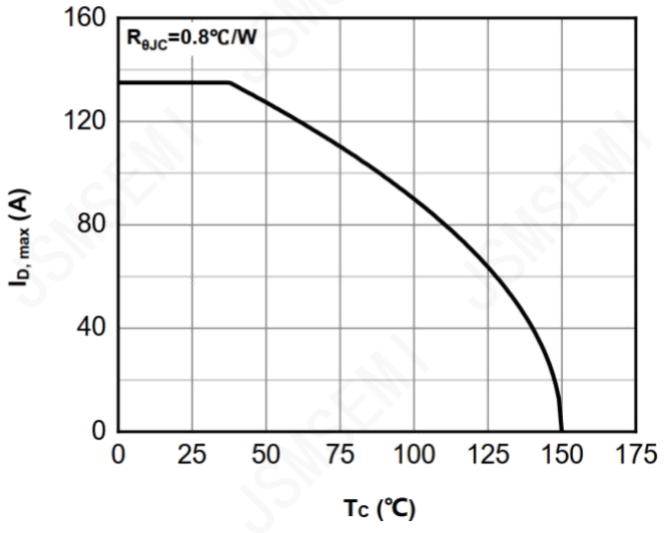


Figure 12: Max.Continuous Drain Current vs. Case Temperature

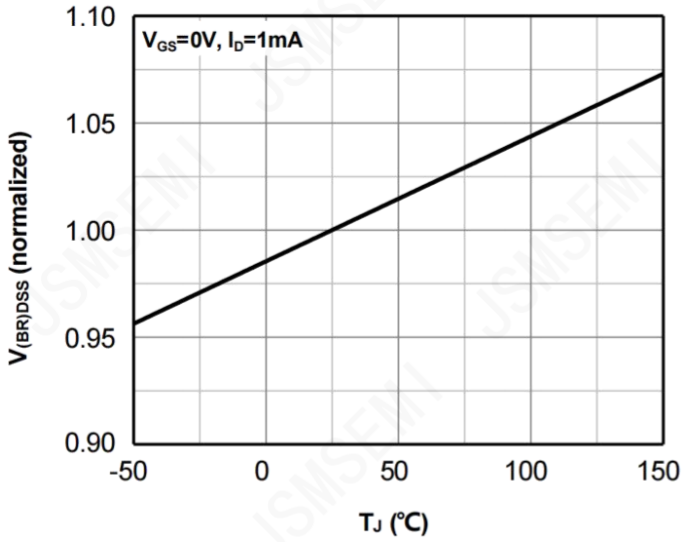


Figure 13: Normalized $V_{(BR)DSS}$ vs. Junction Temperature

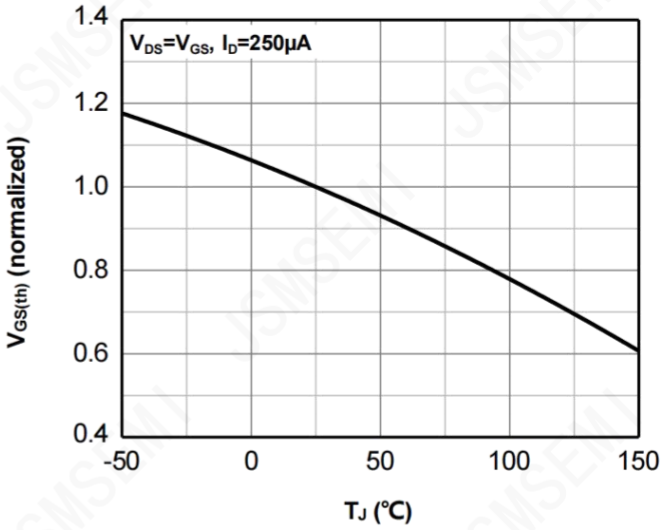


Figure 14: Normalized $V_{GS(th)}$ vs. Junction Temperature

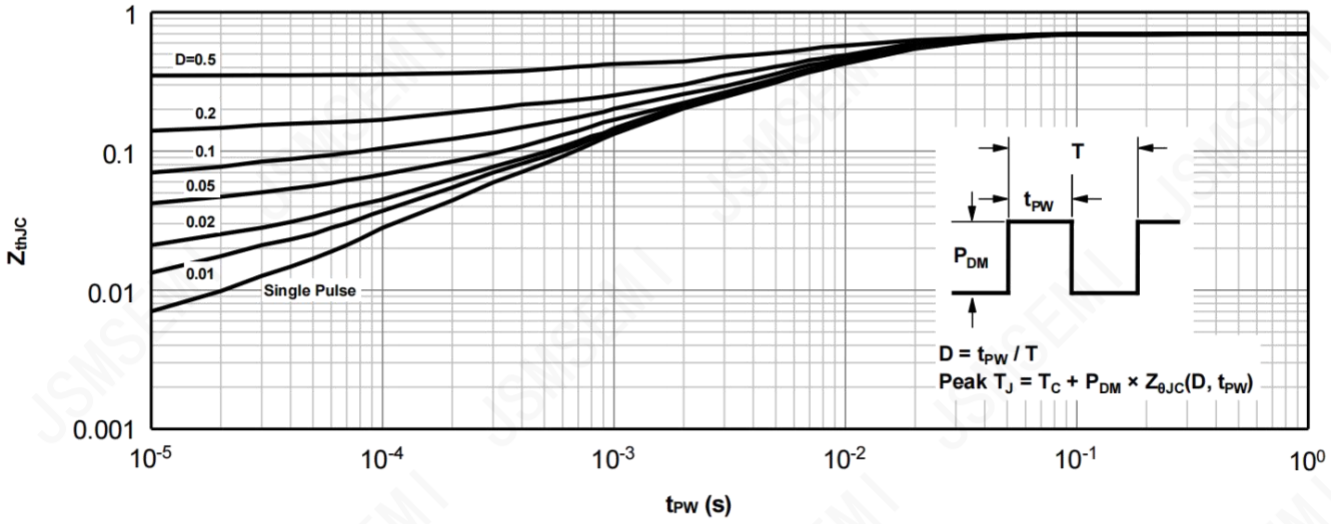
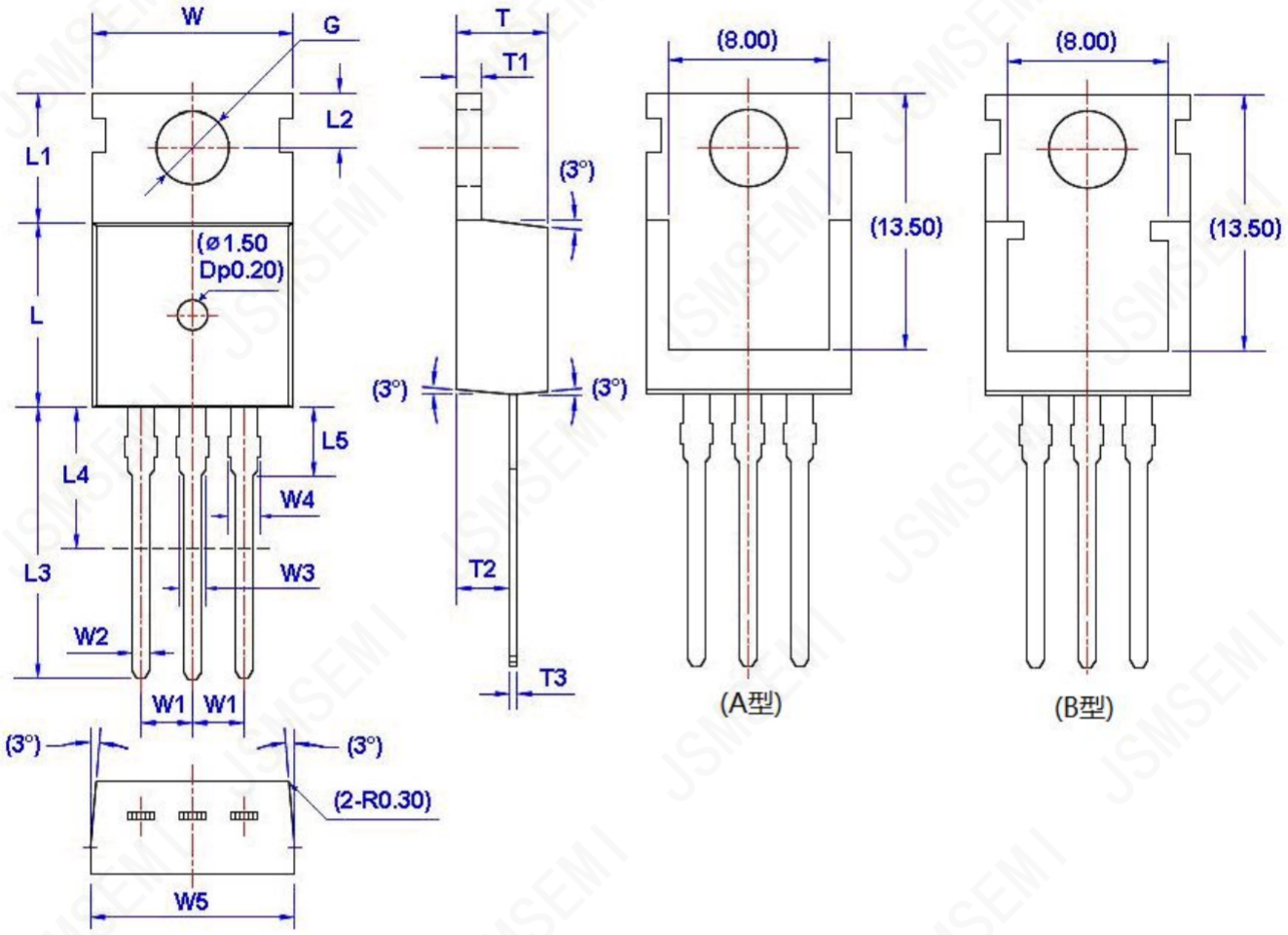


Figure 15: Normalized Transient Thermal Impedance Form Junction To Case

Package Information

TO-220-3

Unit: mm



Symbol	Size		Symbol	Size		Symbol	Size		Symbol	Size	
	Min	Max		Min	Max		Min	Max		Min	Max
W	9.66	10.28	W5	9.80	10.20	L4**	6.20	6.60	T3	0.45	0.60
W1	2.54（TYP）		L	9.00	9.40	L5	2.79	3.30	G(Φ)	3.50	3.70
W2	0.70	0.95	L1	6.40	6.80	T	4.30	4.70			
W3	1.17	1.37	L2	2.70	2.90	T1	1.15	1.40			
W4*	1.32	1.72	L3	12.70	14.27	T2	2.20	2.60			

Revision History

Rev.	Change	Date
V1.0	Initial version	6/27/2021

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