Features

- ☐ Low Intrinsic Capacitances
- ☐ Excellent Switching Characteristics
- ☐ Extended Safe Operating Area
- ☐ Unrivalled Gate Charge : 22 nC (Typ.)
- ☐ BVDSS=200V,ID=10A
- ☐ Lower $R_{DS(on)}$: 0.4 Ω (Max) @VG=10V
- ☐ 100% Avalanche Tested

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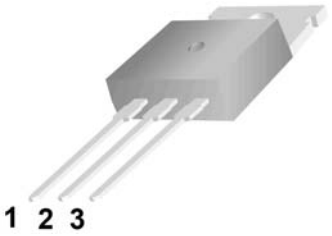
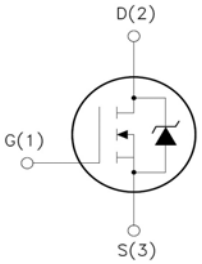
RoHS COMPLIANT





1.Gate (G)
2.Drain (D)
3.Sourse (S)

Absolute Maximum Ratings (Ta=25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{DSS}	Drain-Source Voltage		200	V
I_D	Drain Current	T_j=25℃	10.0	A
		T_j=100℃	7.0	
$V_{GS(TH)}$	Gate Threshold Voltage		±30	V
E_{AS}	Single Pulse Avalanche Energy (note1)		160	mJ
I_{AR}	Avalanche Current (note2)		9.0	A
P_D	Power Dissipation (Tj=25℃)		140	W
T_j	Junction Temperature(Max)		150	℃
T_{stg}	Storage Temperature		-55~+150	℃
TL	Maximum lead temperature for soldering purpose,1/8" from case for 5 seconds		300	℃

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance,Junction to Case	-	0.88	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	-	62.5	℃/W

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Symbol	Parameter	Test Condition	Min.	Typ.	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourse Breakdown Voltage	ID=250μA，VGS=0	200	--	--	V
$\triangle BV_{DSS}/\triangle T_J$	Breakdown Voltage Temperature Conficient	I_D=250μA ,Reference to 25℃	--	0.55	--	V/℃
IDSS	Zero Gate Voltage Drain Current	Vds=200V, Vgs=0V	--	--	1	μA
		Vds=160V, Tc=125℃			10	μA
IGSSF	Gate-body leakage Current, Forward	Vgs=+30V, Vds=0V	--	--	100	nA
IGSSR	Gate-body leakage Current, Reverse	Vgs=-30V, Vds=0V	--	--	-100	nA
On Characteristics						
$V_{GS(th)}$	Date Threshold Voltage	Id=250uA,Vds=Vgs	2	--	4	V
$R_{DS(on)}$	Static Drain-Sourse On-Resistance	Id=10A,Vgs=10V	--	--	0.4	Ω
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=25V，VGS=0，f=1.0MHz	--	710	-	pF
Coss	Output Capacitance		--	85	-	pF
Crss	Reverse Transfer Capacitance		--	22	-	pF
Switching Characteristics						
Td(on)	Turn-On Delay Time	VDD=100V，ID=10A，RG=25Ω (Note 3,4)	--	11	25	nS
Tr	Turn-On Rise Time		--	70	140	nS
Td(off)	Turn-Off Delay Time		--	60	120	nS
Tf	Turn-Off Fall Time		--	65	130	nS
Qg	Total Gate Charge	VDS=160,VGS=10V，ID=10A (Note 3,4)	--	22	30	nC
Qgs	Gate-Sourse Charge		--	4	--	nC
Qgd	Gate-Drain Charge			11	--	nC
Drain-Sourse Diode Characteristics and Maximum Ratings						
I_S	Maximun Continuous Drain-Sourse Diode Forward Current		--	--	10	A
I_{SM}	Maximun Plused Drain-Sourse DiodeForwad Current		--	--	40	A
V_{SD}	Drain-Sourse Diode Forward Voltage	Id=10A	--	--	1.45	V
trr	Reverse Recovery Time	I_S=10A,V_{GS} =0V di_F/dt=100A/μs (Note3)	--	140	--	nS
Qrr	Reverse Recovery Charge		--	2.2	--	μC

*Notes 1, L=8mH, IAS=10A, VDD=50V, RG=25Ω, Starting TJ =25°C

2, Repetitive Rating : Pulse width limited by maximum junction temperature

3, Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

4, Essentially Independent of Operating Temperature

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Typical Characteristics

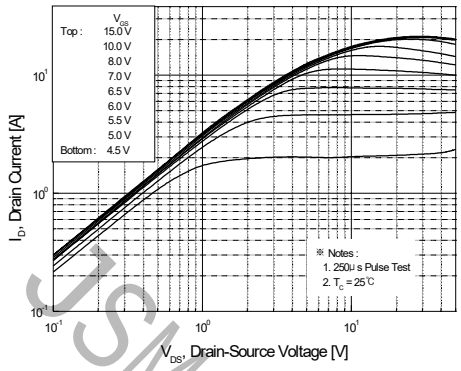

Figure 1. On-Region Characteristics

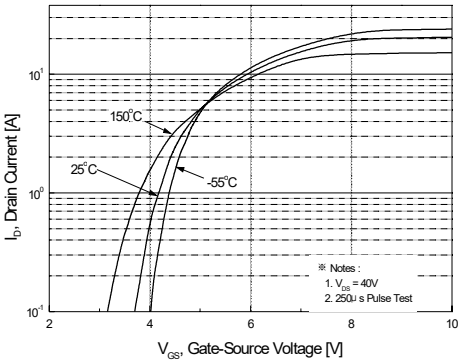

Figure 2. Transfer Characteristics

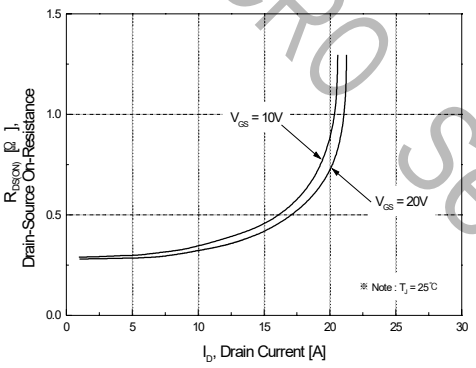

Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

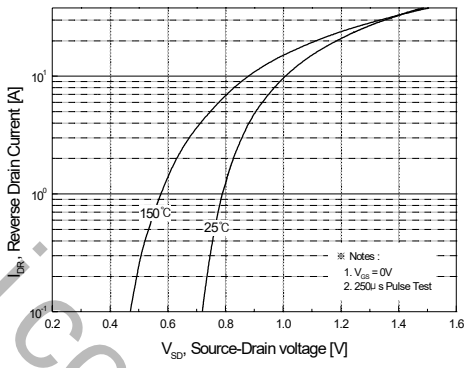

Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

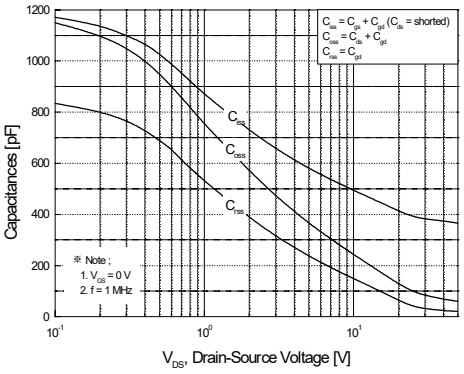

Figure 5. Capacitance Characteristics

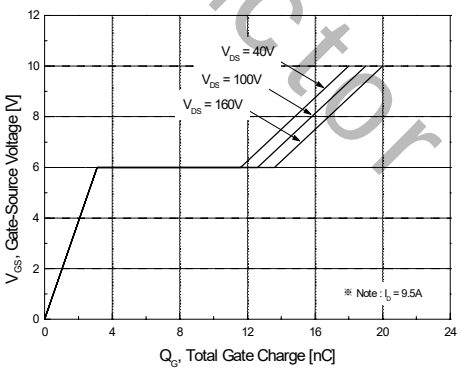

Figure 6. Gate Charge Characteristics

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Typical Characteristics (Continued)

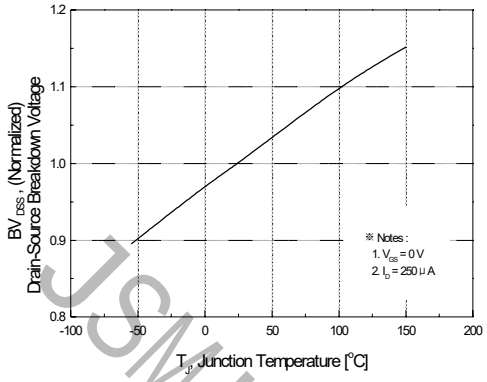

Figure 7. Breakdown Voltage Variation vs Temperature

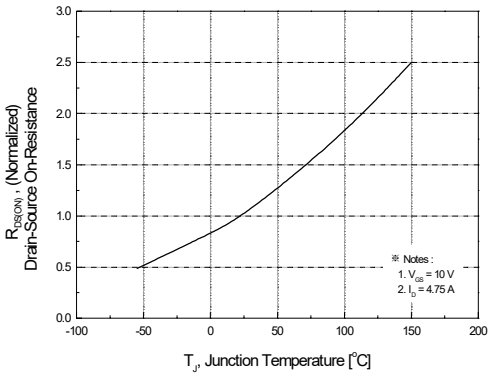

Figure 8. On-Resistance Variation vs Temperature

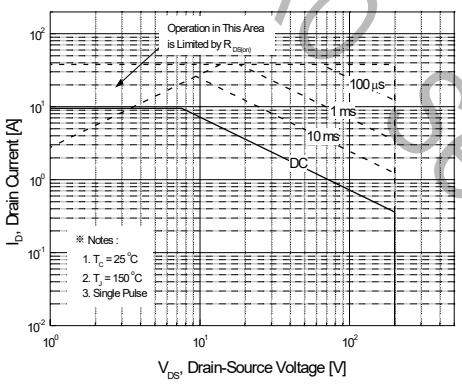

Figure 9-1. Maximum Safe Operating Area

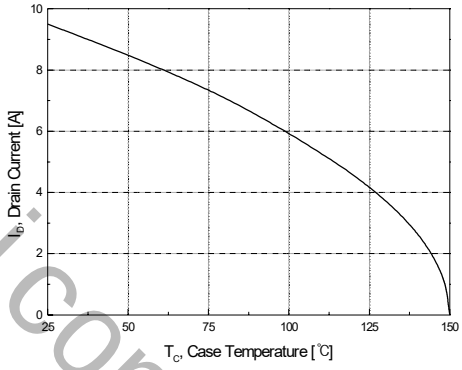

Figure 10. Maximum Drain Current vs Case Temperature

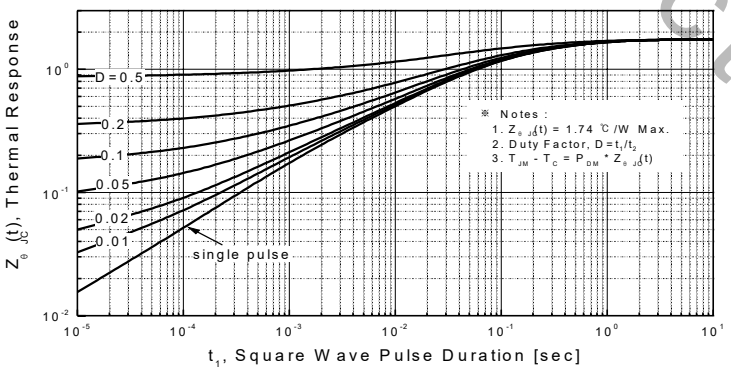

Figure 11-1. Transient Thermal Response Curve

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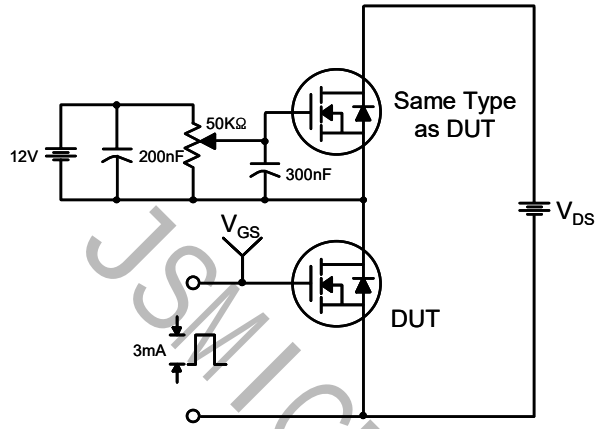
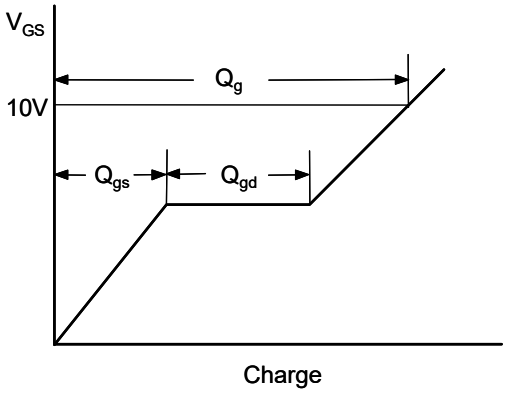
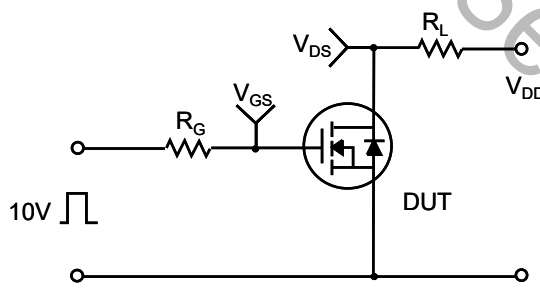
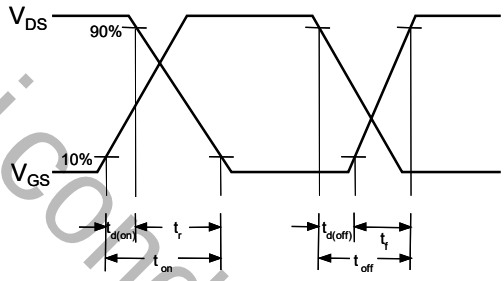
Gate Charge Test Circuit & Waveform



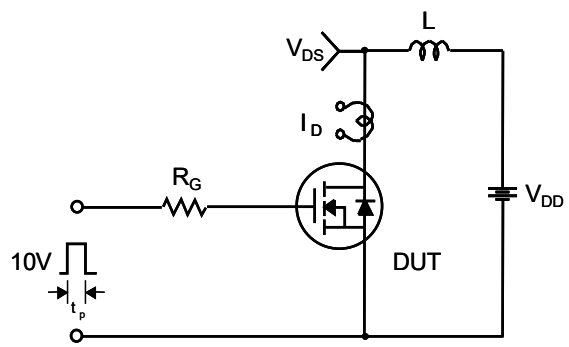


Resistive Switching Test Circuit & Waveforms

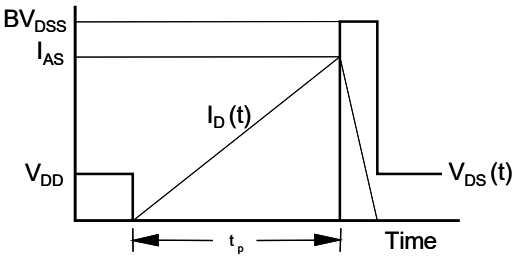




Unclamped Inductive Switching Test Circuit & Waveforms



$$E_{AS} = \frac{1}{2} L I_{AS}^2 \frac{BV_{DSS}}{BV_{DSS} - V_{DD}}$$



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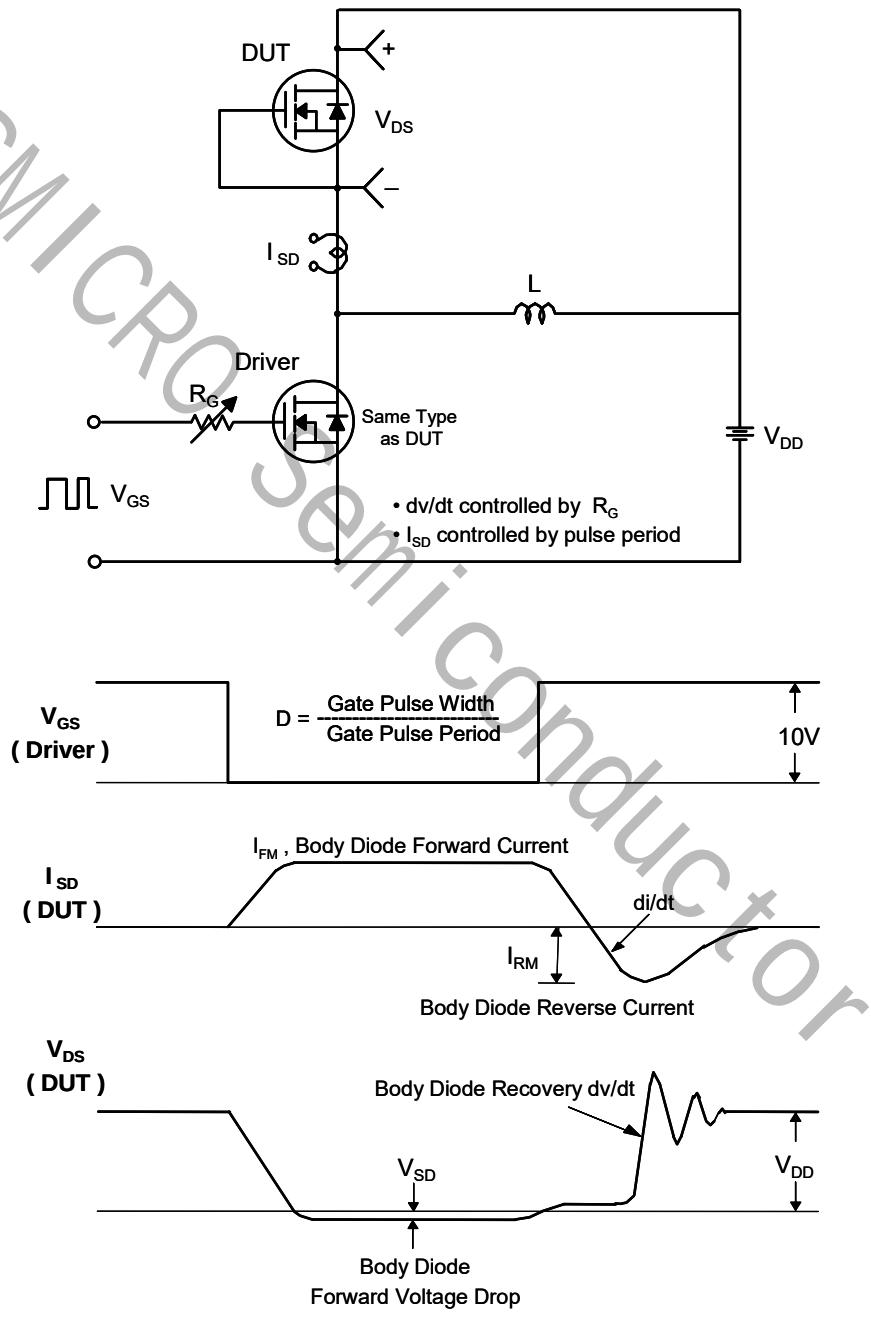
Peak Diode Recovery dv/dt Test Circuit & Waveforms



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Package Dimension

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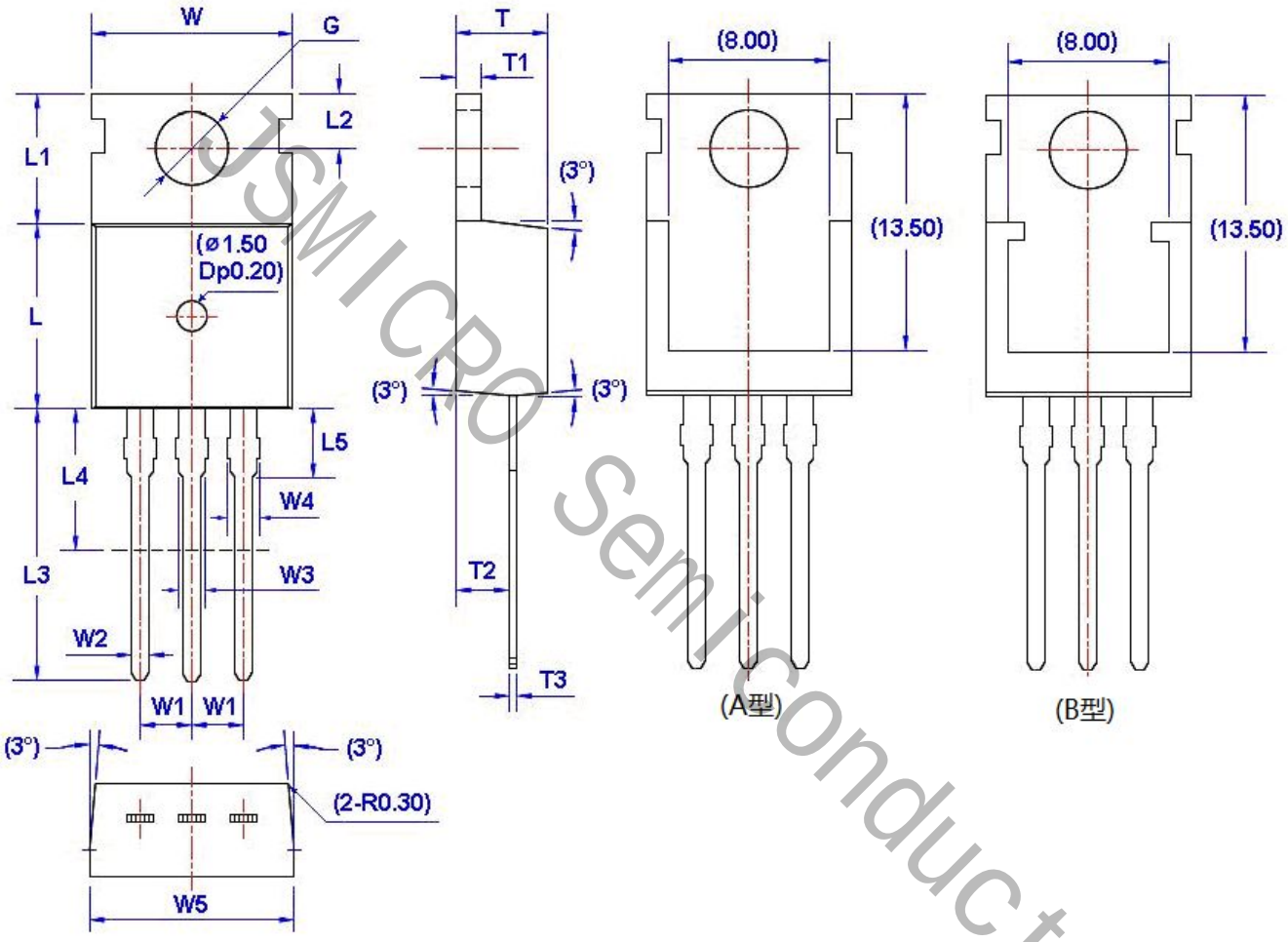
Unit:mm



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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			