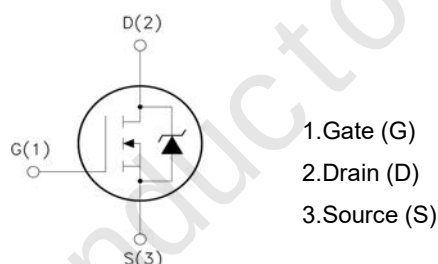
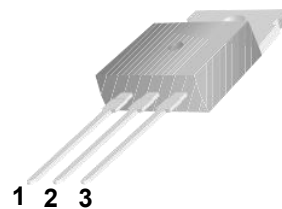


Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg=76nC (Typ.).
- ☐ $V_{DS}=75V, I_D=80A$
- ☐ $R_{DS(on)} : 0.009\Omega$ (Max) @ $V_G=10V$
- ☐ 100% Avalanche Tested

TO-220



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Maximum	Unit
V_{DS}	Drain-to-Source Voltage	75	V
V_{GS}	Gate-to-Source Voltage	± 25	V
I_D^3	Continuous Drain Current	$T_C=25^\circ\text{C}$ 80	A
I_{DP}^4	Pulsed Drain Current	$T_C=100^\circ\text{C}$ 70	
I_{AS}^5	Avalanche Current	$T_C=25^\circ\text{C}$ 340	
EAS^5	Avalanche energy	20	mJ
PD	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 240	W
T_J, T_{STG}	Junction & Storage Temperature Range	$T_C=100^\circ\text{C}$ 100	
		-55~175	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta jc}$	Thermal Resistance-Junction to Case	0.52	$^\circ\text{C/W}$
$R_{\theta ja}$	Thermal Resistance-Junction to Ambient	55	

Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	75	—	—	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=64V, V_{GS}=0V$	—	—	1	μA
		$T_J=125^{\circ}C$	—	—	100	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3	4	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$	—	—	± 100	nA
$R_{DS(on)}^1$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=40A$	—	7.5	9	m Ω
			—	—	—	
Diode Characteristics						
V_{SD}^1	Diode Forward Voltage	$I_{SD}=40A, V_{GS}=0V$	—	—	1.3	V
I_S	Diode Continuous Forward Current		—	—	80	A
t_{rr}	Reverse Recovery Time	$I_F=40A,$	—	25	—	nS
Q_{rr}	Reverse Recovery Charge	$dI/dt=100A/us$	—	18.5	—	nC
Dynamic Characteristics ²						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V,$ Frequency=1MHz	—	1.3	—	Ω
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=25V$ Frequency=1MHz	—	3110	—	pF
C_{oss}	Output Capacitance		—	445	—	
C_{rss}	Reverse Transfer Capacitance		—	270	—	
$t_{d(on)}$	Turn-On Delay Time	$V_{DD}=37.5V, I_D=40A,$ $V_{GS}=10V, R_G=6.8\Omega$	—	20.4	—	nS
t_r	Rise Time		—	63	—	
$t_{d(off)}$	Turn-Off Delay Time		—	67	—	
t_f	Fall Time		—	43	—	
Gate Charge Characteristics ²						
Q_g	Total Gate Charge	$V_{DS}=37.5V, V_{GS}=10V$ $I_D=40A$	—	76	—	nC
Q_{gs}	Gate-to-Source Charge		—	9.5	—	
Q_{gd}	Gate-to-Drain Charge		—	40	—	

Note: 1: Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

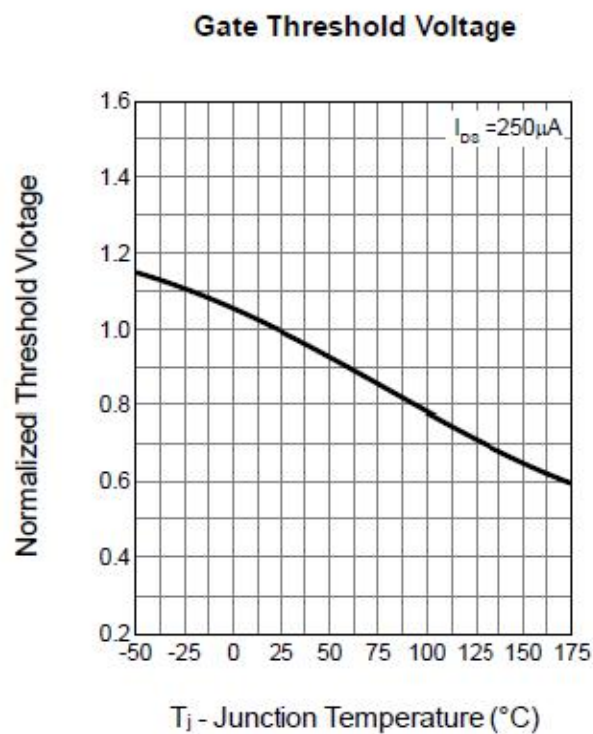
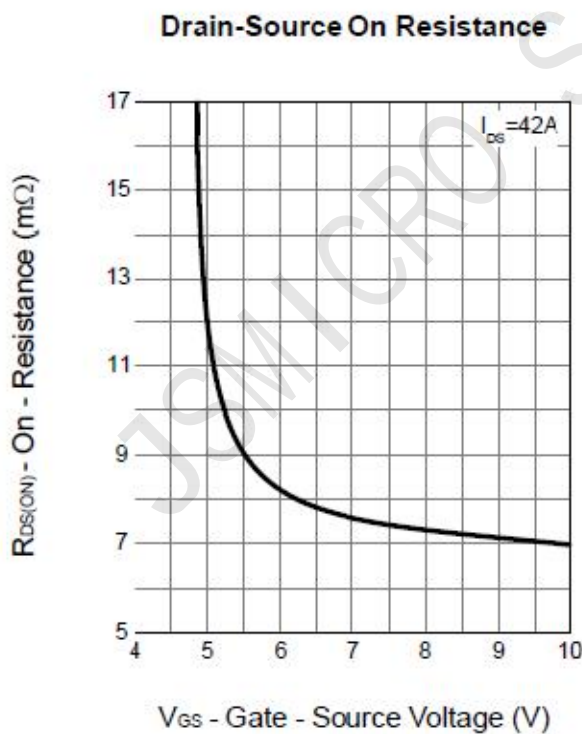
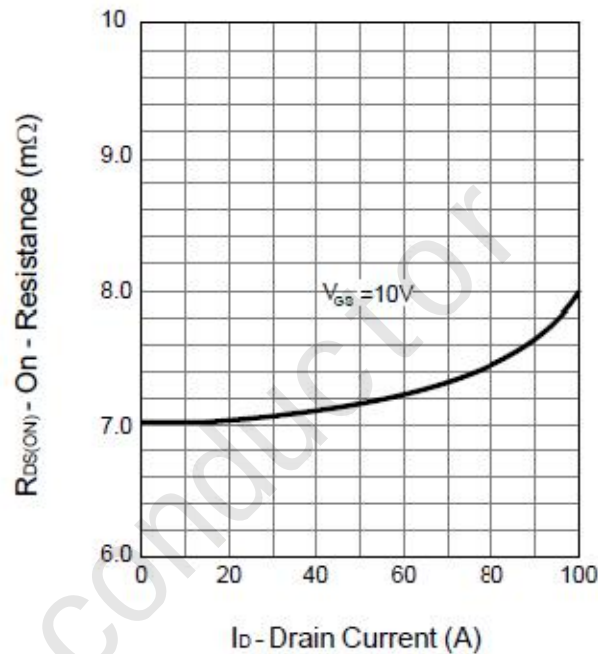
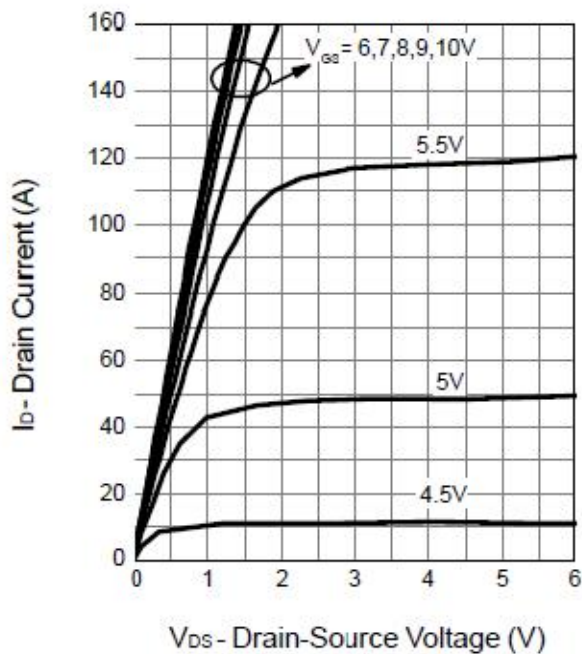
2: Guaranteed by design, not subject to production testing.

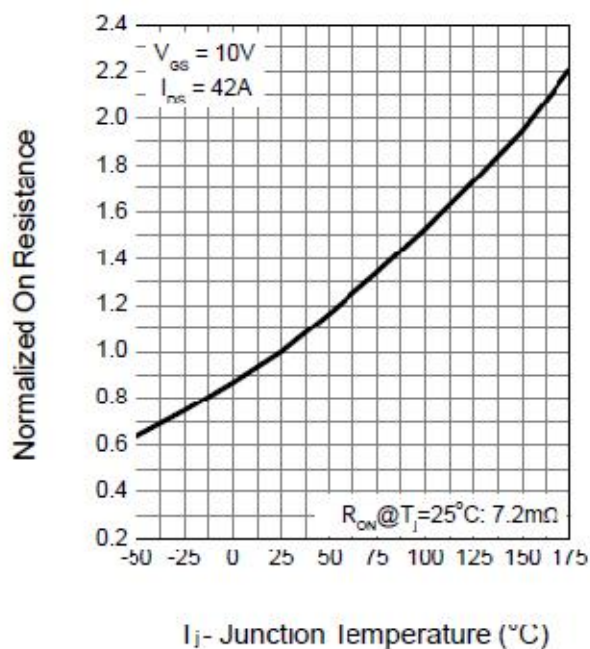
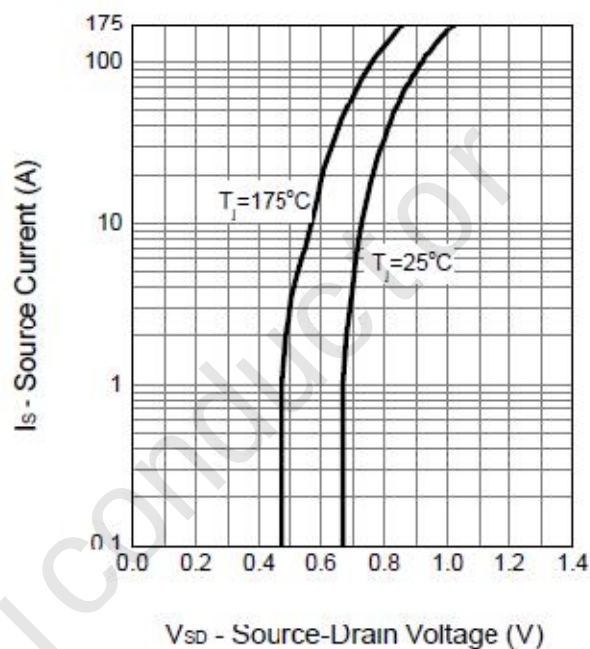
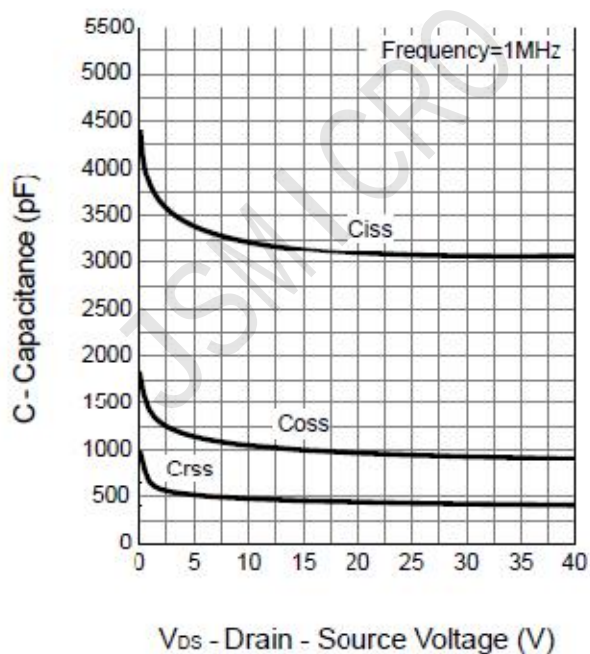
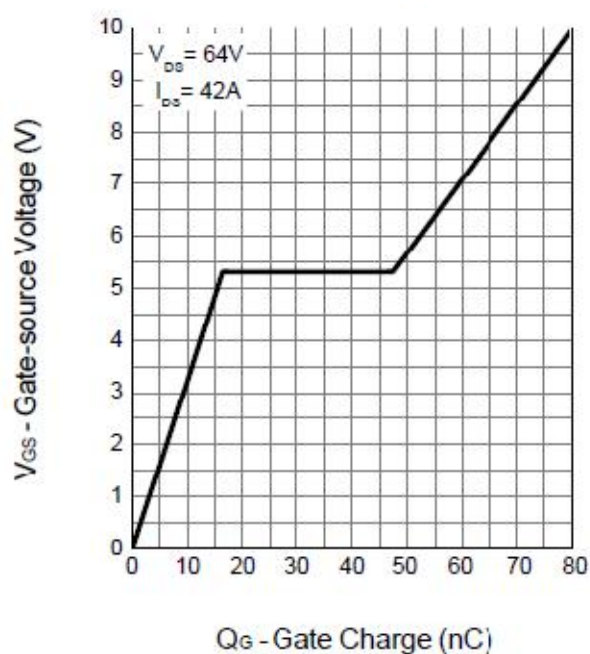
3: Package limitation current is 50A. Calculated continuous current based on maximum allowable junction temperature.

4: Repetitive rating, pulse width limited by max junction temperature.

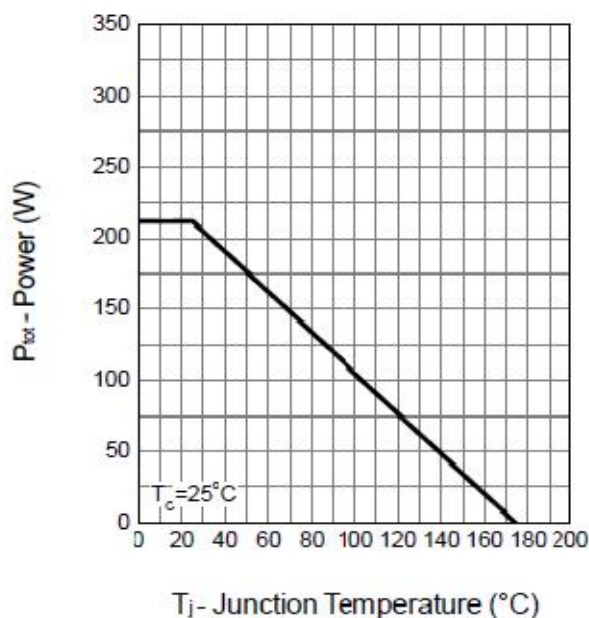
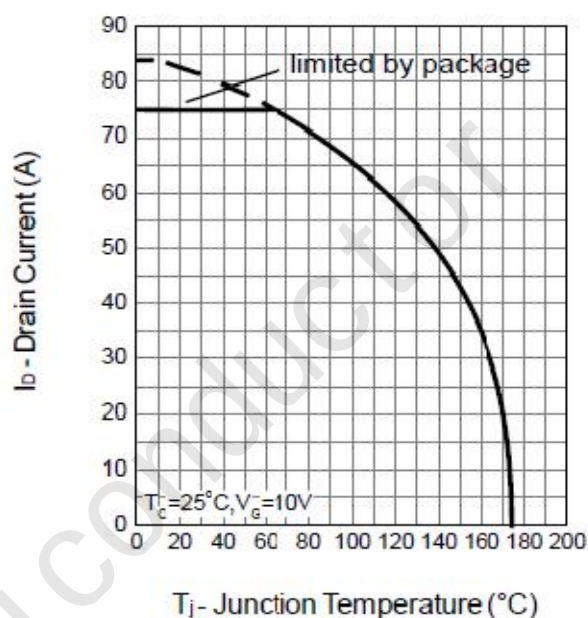
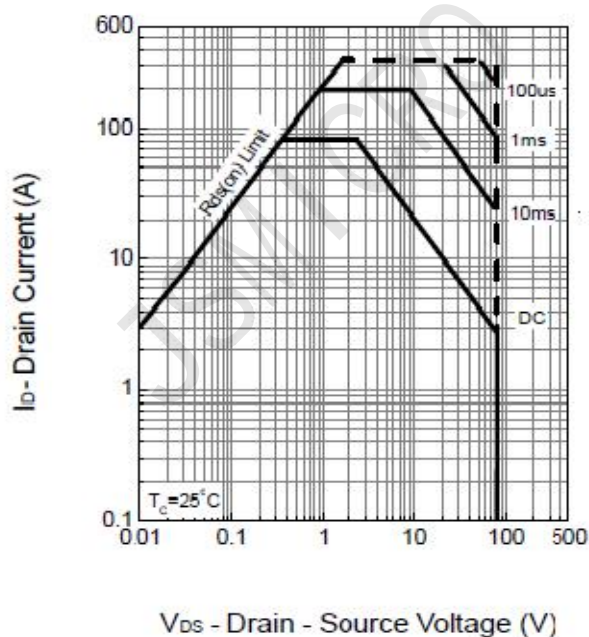
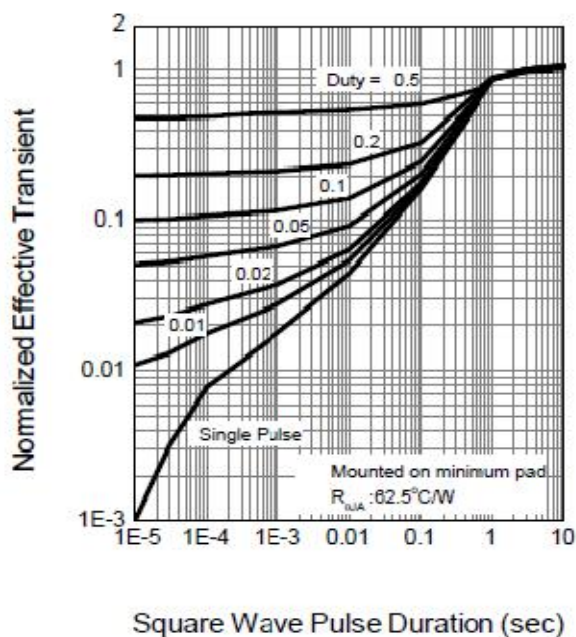
5: Starting $T_J = 25^\circ C, L = 1mH, I_{AS} = 40A$.

Typical Characteristics

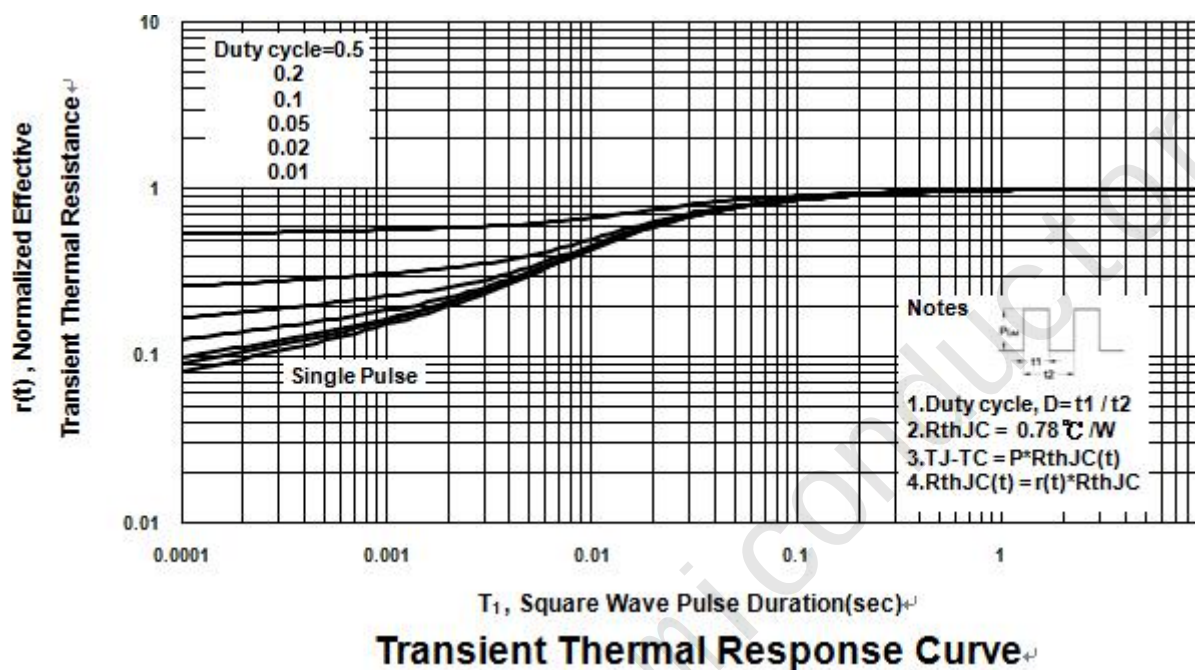


Typical Characteristics (Continued)
Drain-Source On Resistance

Source-Drain Diode Forward

Capacitance

Gate Charge


Typical Characteristics (Continued)

Power Dissipation

Drain Current

Safe Operation Area

Thermal Transient Impedance


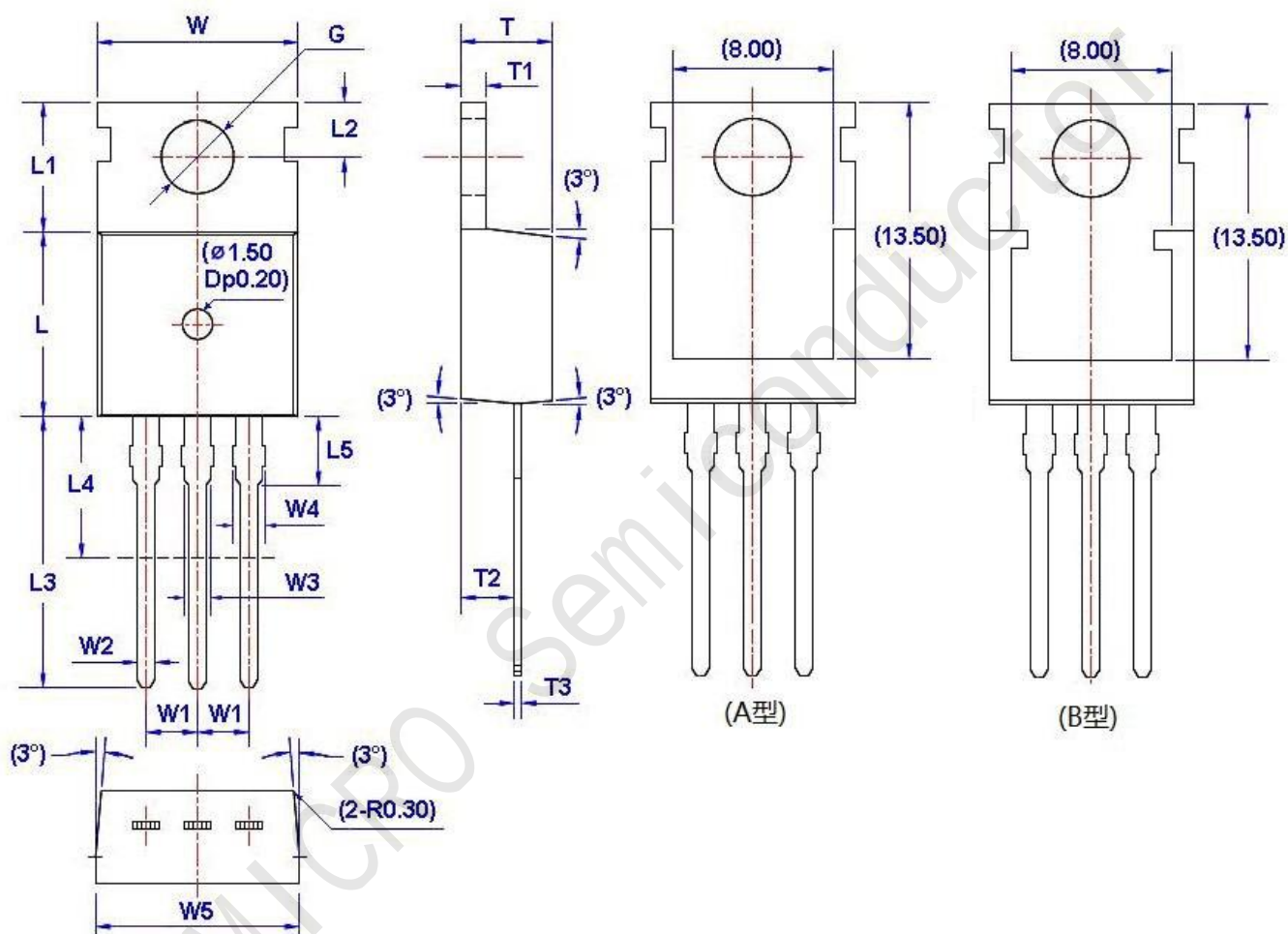
Typical Characteristics (Continued)



Package Dimension

TO-220

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			