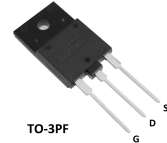
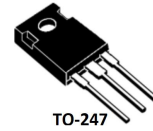
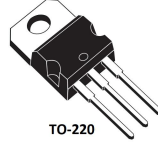
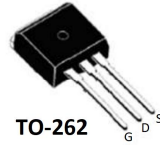
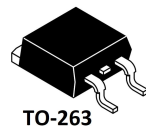


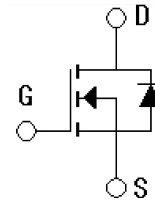
Features

- Low gate charge
- Low C_{RSS} (typ. 12pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product



Applications

- High frequency switching mode power supply
- Electronic ballast
- UPS



Absolute Ratings ($T_c=25^\circ\text{C}$)

Parameter	Symbol		Value	Unit
Drain-Source Voltage	V _{DSS}		1000	V
Transient Gate-Source Voltage	V _{GSM}		±30	V
Continuous Gate-Source Voltage	V _{GSS}		±20	V
Drain Current-continuous	I _D	T _C =25℃	8	A
		T _C =100℃	5	A
Drain Current-pulse (note 1)	I _{DM}		32*	A
Single pulse avalanche energy(note 2)	E _{AS}		650	mJ
Avalanche Current（note 1）	I _{AR}		8	A
Repetitive Avalanche Energy (note 1)	E _{AR}		393	mJ
Power Dissipation (TO-220\TO-247)	P _D Derate above 25℃		167	W
			1.43	W/℃
Power Dissipation (TO-263\TO-262)	P _D Derate above 25℃		83	W
			0.34	W/℃
Power Dissipation (TO-220F/TO-3PF)	P _D Derate above 25℃		31.7	W
			0.25	W/℃
Operating and Storage Temperature Range	T _J ,T _{STG}		-55~+150	℃
Peak Diode Recovery dv/dt (note 3)	dv/dt		4.5	V/ns
Maximum Lead Temperature for Soldering Purposes	T _L		300	℃

*Drain current limited by maximum junction temperature

Electrical Characteristics($T_{CASE}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	1000	-	-	V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	$I_D=250\mu A$, referenced to $25^{\circ}C$	-	1.05	-	$V/^{\circ}C$
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=1000V, V_{GS}=0V, T_C=25^{\circ}C$	-	-	2	μA
		$V_{DS}=800V, T_C=125^{\circ}C$	-	-	10	μA
Gate body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA

On-Characteristics

Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.15	-	4.95	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=1A$	-	1.8	2.5	Ω
Forward Transconductance	g_{FS}	$V_{DS}=40V, I_D=4A$ (note 4)	-	5.6	-	S

Dynamic Characteristics

Input capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	687	-	pF
Output capacitance	C_{oss}		-	67	-	pF
Reverse transfer capacitance	C_{rss}		-	12	-	pF

Electrical Characteristics($T_{CASE}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Switching-Characteristics						
Turn-On delay time	$t_{d(on)}$	$V_{DD}=500V, I_D=8A, R_{GEN}=25\Omega$ (note 4,5)	-	13	-	ns
Turn-On rise time	t_r		-	22	-	ns
Turn-Off delay time	$t_{d(Off)}$		-	63	-	ns
Turn-Off rise time	t_f		-	19	-	ns
Total Gate Charge	Q_g	$V_{DS}=500V, I_D=4A, V_{GS}=10V$ (note 4,5)	-	14	-	nC
Gate-Source charge	Q_{gs}		-	4	-	nC
Gate-Drain charge	Q_{gd}		-	5	-	nC

Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward Voltage (note 3)	V_{SD}	$V_{GS}=0V, I_S=1A$	-	0.73	1.4	V
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	-	-	-	24	A
Maximum Continuous Drain Source Diode Forward Current	I_S	-	-	-	8	A
Reverse recovery time	t_{rr}	$V_{GS}=0V,$ $I_S=3A \text{ d}I_F/\text{d}t=100A/\mu s$ $T_C=25^\circ C$ (note 4)	-	159	-	ns
Reverse recovery charge	Q_{rr}		-	693	-	nC
Reverse recovery time	t_{rr}	$V_{GS}=0V,$ $I_S=3A \text{ d}I_F/\text{d}t=100A/\mu s$ $T_C=100^\circ C$ (note 4)	-	153	-	ns
Reverse recovery charge	Q_{rr}		-	685	-	nC

Thermal Characteristic

Parameter	Symbol	Value			Unit
		TO-220/ TO-247/TO-263	TO-262	TO-220F/ TO-3PF	
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.78	1.5	3.94	$^\circ C/W$
Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	62.5	65	80	$^\circ C/W$

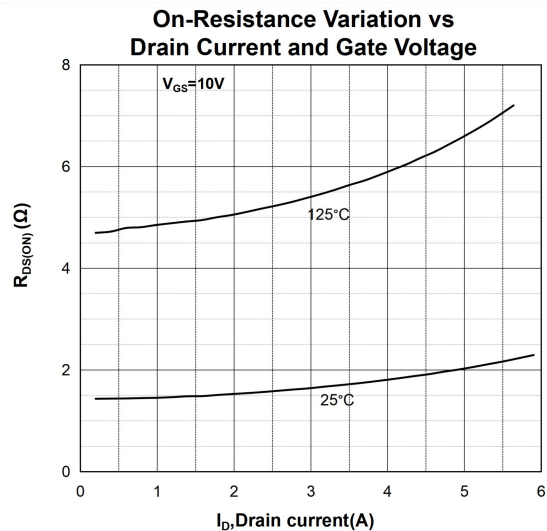
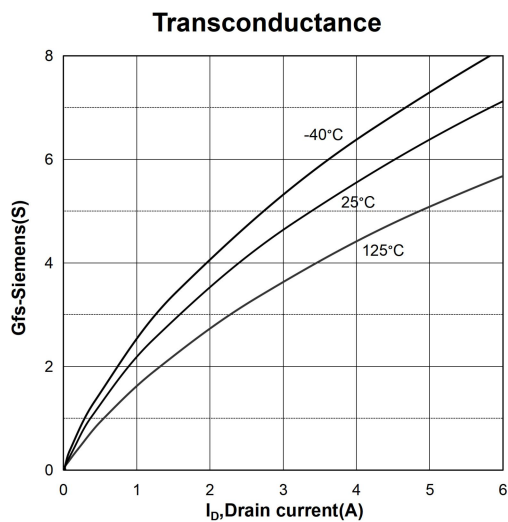
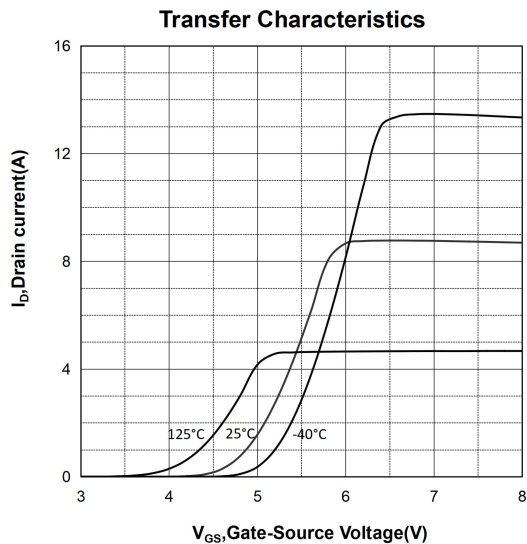
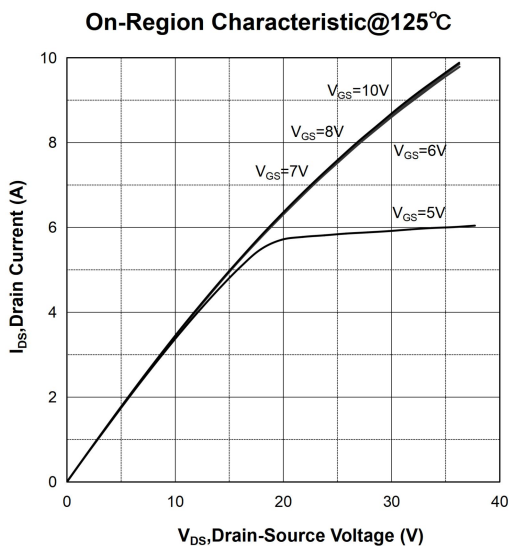
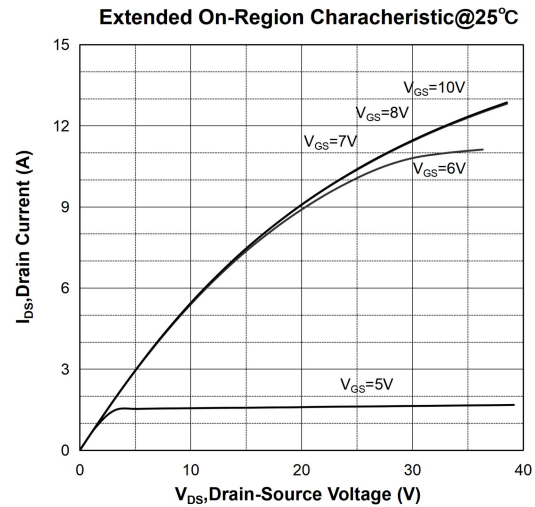
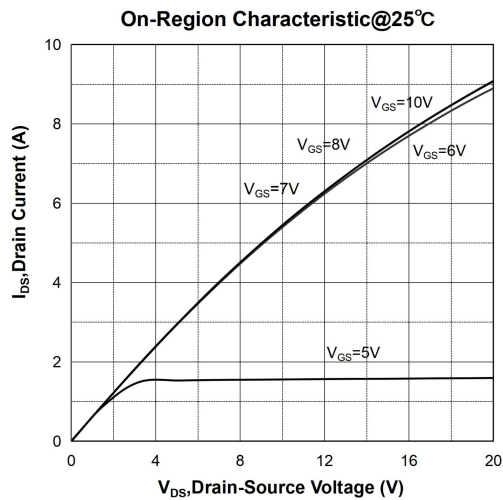
Order Message

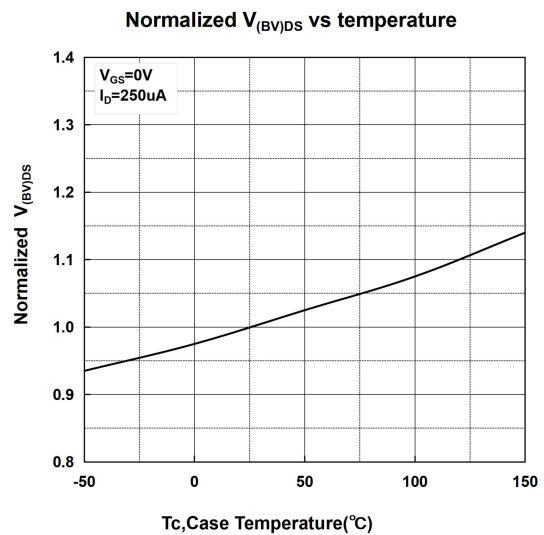
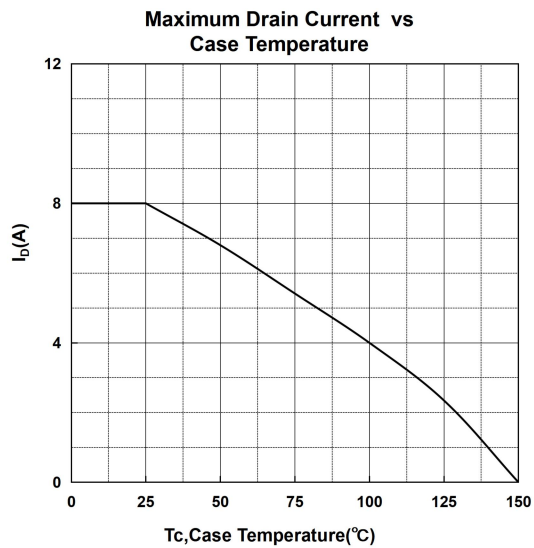
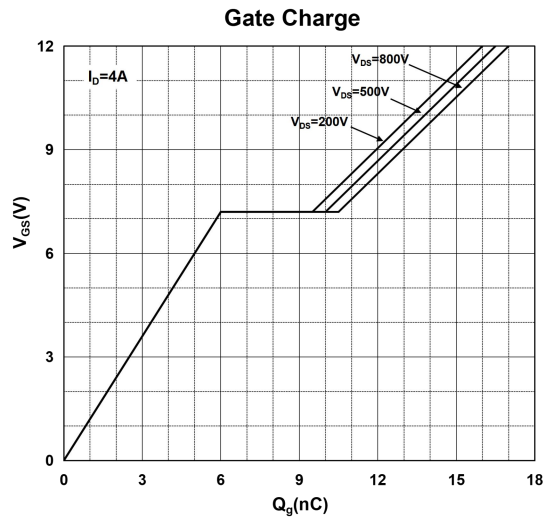
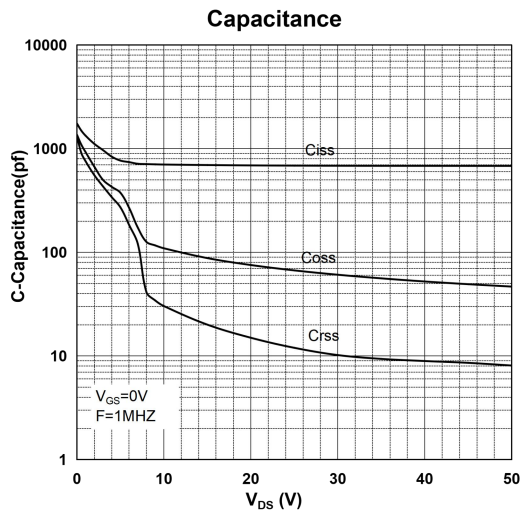
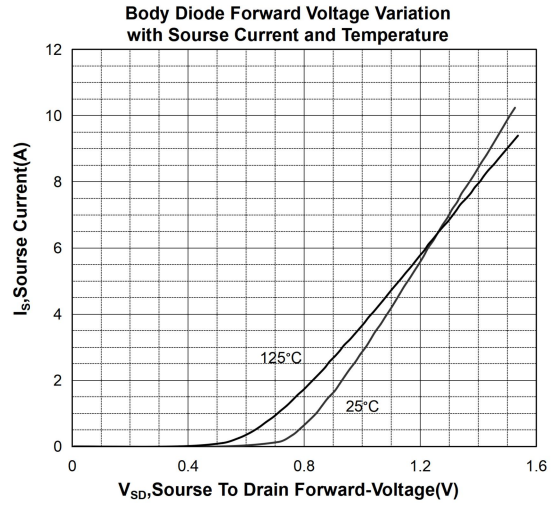
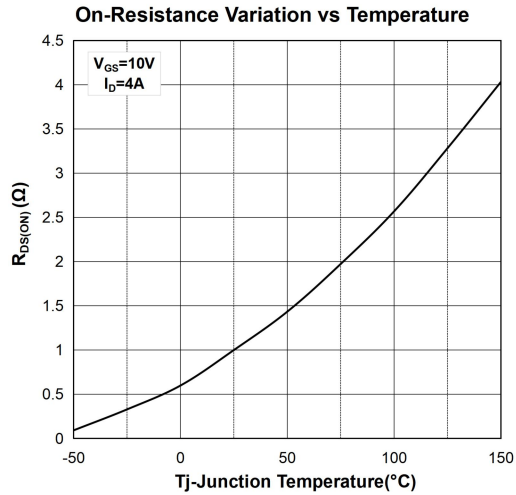
Marking	Package
MS8N100FE	TO-263
MS8N100FK	TO-262
MS8N100FS	TO-220F
MS8N100FT	TO-220
MS8N100FC	TO-247
MS8N100FB2	TO-3PF

Notes:

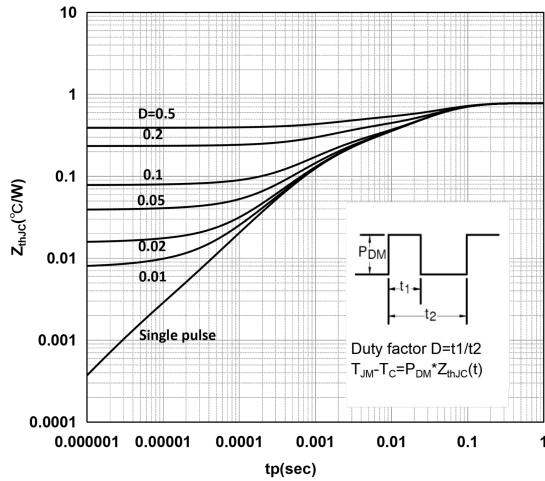
1. Pulse width limited by maximum junction temperature
2. $L=20mH, I_{AS}=8A, V_{DD}=50V, R_G=25 \Omega$, Starting $T_J=25^\circ C$
3. $I_{SD} \leq 8A, di/dt \leq 200A/\mu s, V_{DD} \leq BV_{DSS}$, Starting $T_J=25^\circ C$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
5. Essentially independent of operating temperature

ELECTRICAL CHARACTERISTICS (curves)

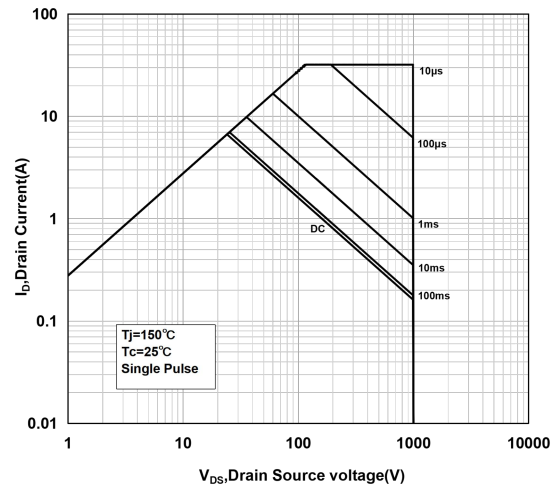




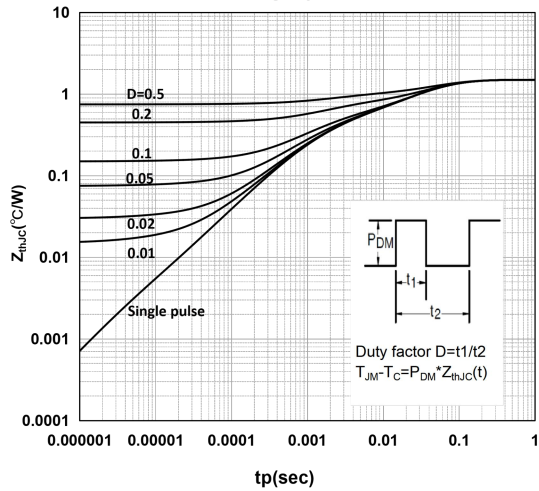
Transient Thermal Response Curve for
TO-247/TO-220/TO-263



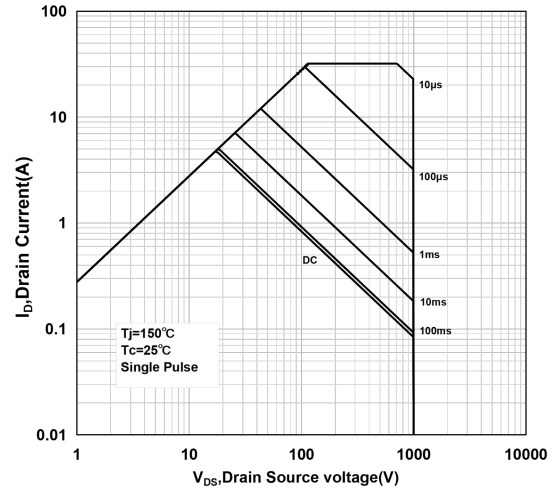
Safe Operating Area for
TO-247/TO-220/TO-263



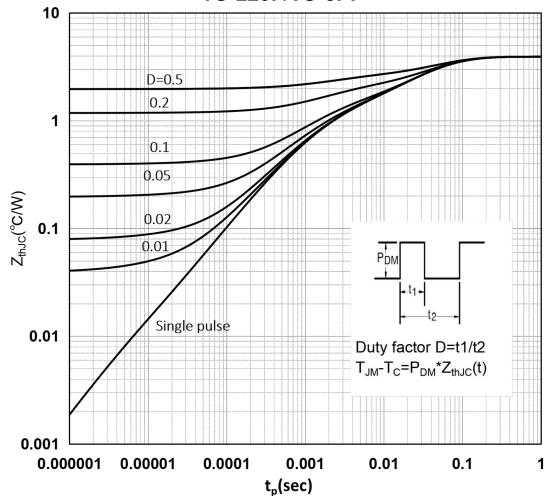
Transient Thermal Response Curve for
TO-262



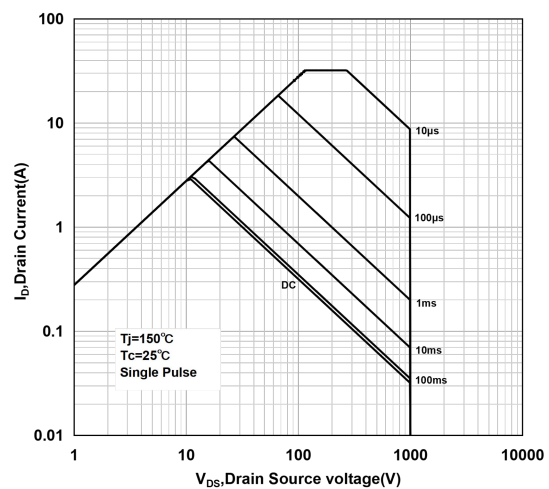
Safe Operating Area for
TO-262



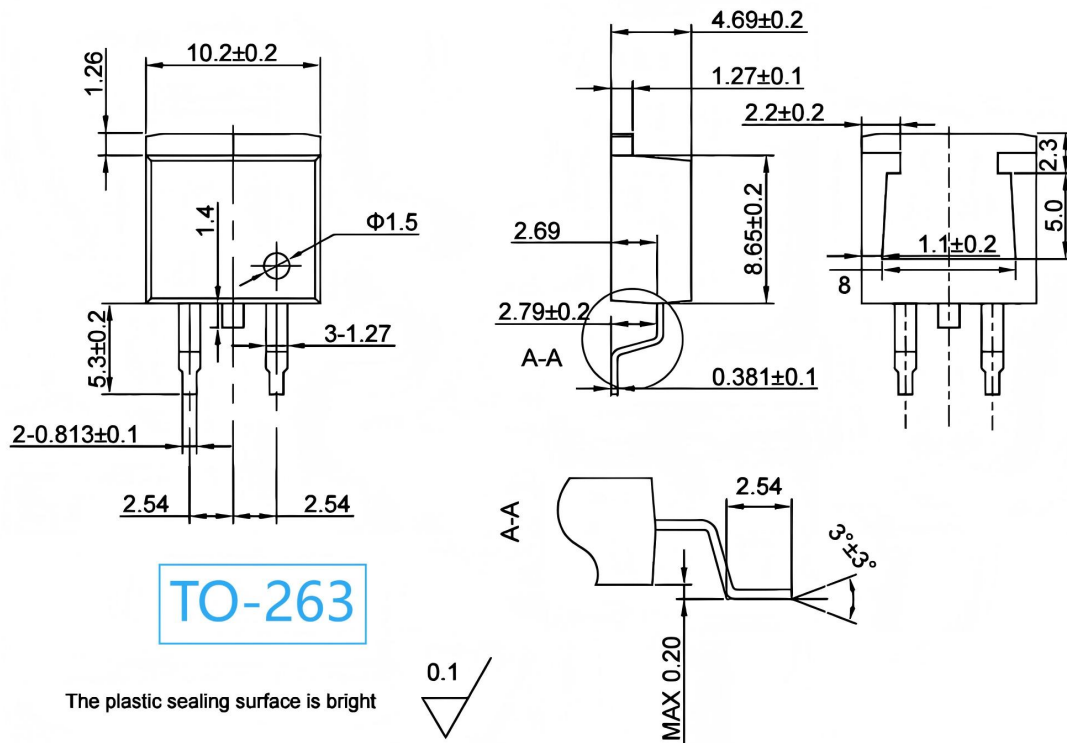
Transient Thermal Response Curve for
TO-220F/TO-3PF



Safe Operating Area for
TO-220F/TO-3PF

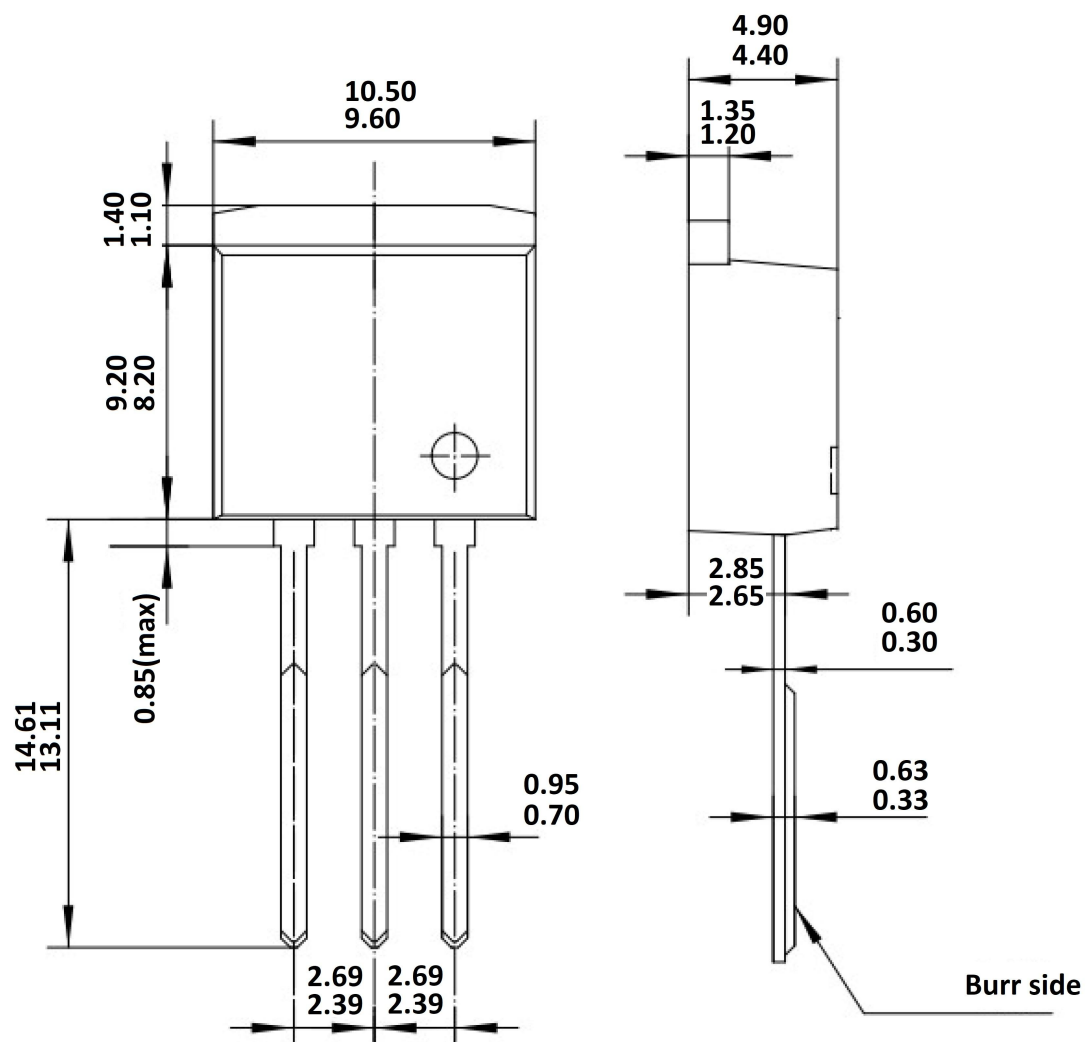


PACKAGE MECHANICAL DATA



Notes:

1. Unmarked tolerance $\pm 0.15\text{mm}$; unmarked $R < 0.15\text{mm}$
2. The resin body is not allowed to have defects, shrinkage holes, cracks, bubbles and other harmful defects
3. The drawing indicates that the leg has reinforcement
4. Unit : mm



TO-262 Unit:mm

