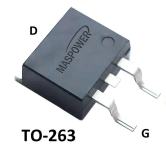
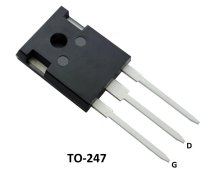
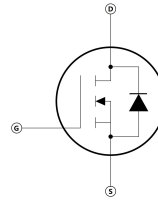


Features

- Low gate charge
- Low Crss (typical 13pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability



Applications

- High efficiency switch mode power supplies
- Electronic lamp ballasts based on half bridge
- LED power supplies

Absolute Ratings (Tc=25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	1000	V
Drain Current -continuous	I_D T=25°C T=100°C	10	A
		6.0*	A
Drain Current - pulse (note 1)	I_{DM}	36	A
Gate-Source Voltage	V_{GSS}	±30	V
Single Pulsed Avalanche Energy (note 2)	E_{AS}	858	mJ
Avalanche Current (note 1)	I_{AR}	10	A
Repetitive Avalanche Current (note 1)	E_{AR}	27.7	mJ
Peak Diode Recovery dv/dt (note 3)	dv/dt	4.1	V/ns
Power Dissipation(TO-247/TO-263)	PD	186.5	W
Power Dissipation(TO-220F)		67.9	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C
Maximum Lead Temperature for Soldering Purposes	T_L	300	°C

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Off-Characteristics						
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	1000	-	-	V
Breakdown Voltage Temperature Coefficient Zero Gate Voltage Drain Current	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	$I_D=250\mu A$, referenced to $25^{\circ}C$	-	0.98	-	$V/^{\circ}C$
		$V_{DS}=900V, V_{GS}=0V, T_C=$ $25^{\circ}C$	-	-	1	μA
		$V_{DS}=720V, T_C=125^{\circ}C$	-	-	10	μA
Gate-body leakage current, forward	I_{GSSF}	$V_{DS}=0V, V_{GS}=30V$	-	-	100	nA
Gate-body leakage current,reverse	I_{GSSR}	$V_{DS}=0V, V_{GS}=30V$	-	-	-100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	3	-	5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=4.5A$ $25^{\circ}C$	-	1.35	1.6	Ω
Forward Transconductance	gfs	$V_{DS}=40V, I_D=4.5A$ (note 4)	-	9.5	-	S
Dynamic Characteristics						
Gate resistance	R_g	F=1.0MHZ open drain	0.5	-	3	Ω
Input capacitance	C_{iss}	$V_{DS}=25V,$ $V_{GS}=0V,$ $f=1.0MHZ$	1200	2150	2830	pF
Output capacitance	C_{oss}		100	189	246	pF
Reverse transfer capacitance	C_{rss}		5	13	17	pF
Switching Characteristics						
Turn-On delay time	$t_{d(on)}$	$V_{DD}=450V, I_D=9A, R_G$ $=25\Omega$ (note 4,5)	-	53	121	ns
Turn-On rise time	t_r		-	116	235	ns
Turn-Off delay time	$t_{d(off)}$		-	97	199	ns
Turn-Off Fall time	t_f		-	69	171	ns
Total Gate Charge	Q_g	$V_{DS}=720V,$ $I_D=9A,$ $V_{GS}=10V$ (note4,5)	-	43	56	nC
Gate-Source charge	Q_{gs}		-	15	40	nC
Gate-Drain charge	Q_{gd}		-	21	50	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain -Source Diode Forward Current		I_S	-	-	10	A
Maximum Pulsed		ISM	-	-	36	A

Drain-Source Diode Forward Current						
Drain-Source Diode Forward Voltage	VSD	VGS=0V,IS=9A	-	-	1.4	V
Reverse recovery time	trr	VGS=0V,IS=9A dIF/dt=100A/us(note 4)	-	539	1200	ns
Reverse recovery charge	Qrr		-	6.41	12	uC

Parameter	Symbol	Value		Unit
		TO-247 /TO-263	TO-220F	
Thermal Resistance, Junction to Case	Rth(j-c)	0.67	1.84	°C/W
Thermal Resistance, Junction to Ambient	Rth(j-A)	40	62.5	°C/W

Notes:

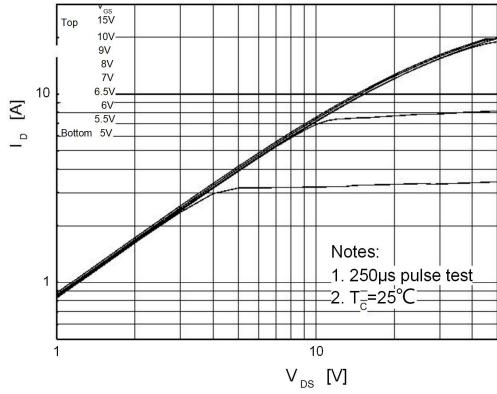
- 1:Pulse width limited by maximum junction temperature
- 2:L=20mH,I_{AS}=10A,V_{DD}=50V,R_G=25Ω,Starting T_J=25°C
- 3:I_{SD}≤10A,di/dt≤200A/us,V_{DD}≤BV_{DSS},Starting T_J=25°C
- 4:Pulse Test:Pulse Width≤200us,Duty Cycle≤2%
- 5:Essentially independent of operating temperature

Order information

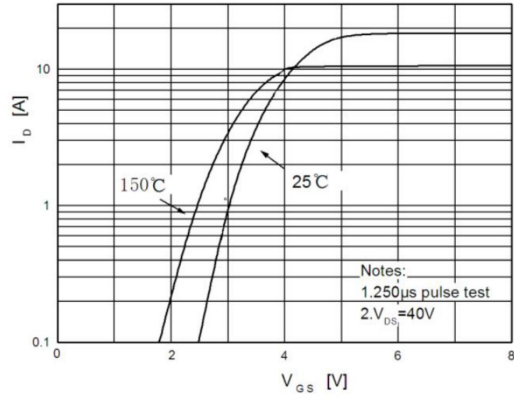
Order codes	Package	Packaging
MS10N100HGC0	TO-247	Tube
MS10N100HGT1	TO-220F	Tube
MS10N100HGEO	TO-263	Tube

Electrical Characteristics

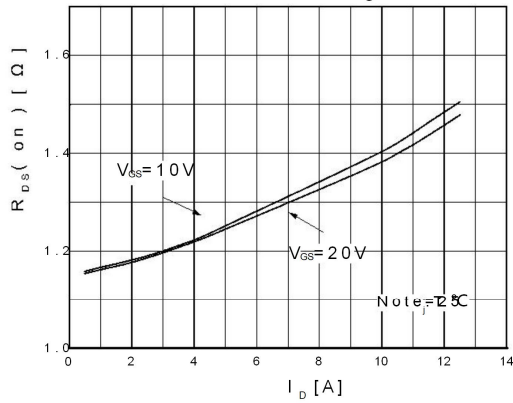
On-Region Characteristics



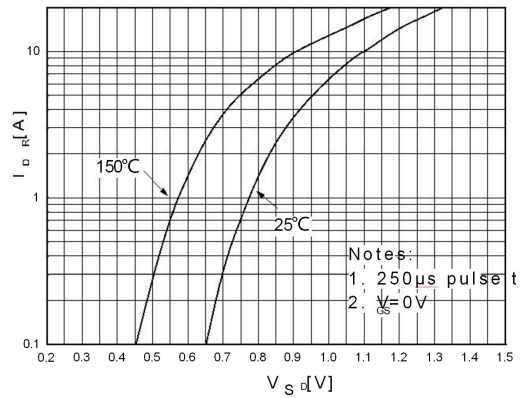
Transfer Characteristics



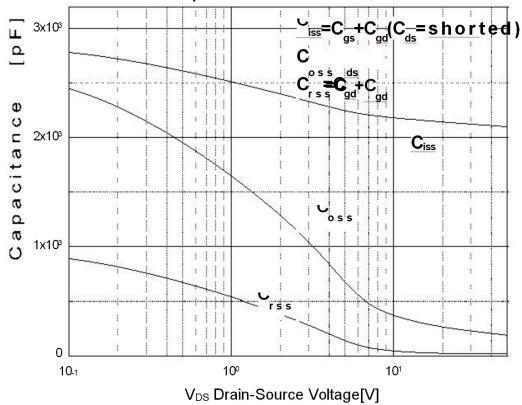
On-Resistance Variation vs. Drain Current and Gate Voltage



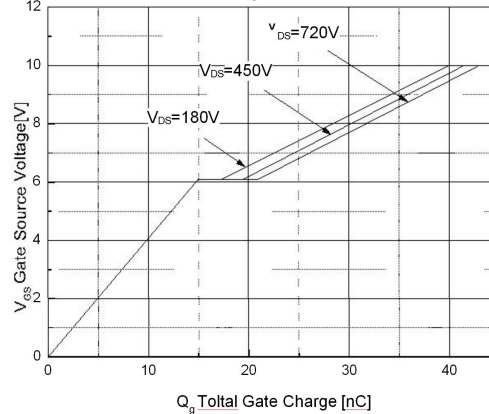
Body Diode Forward Voltage Variation vs. Source Current and Temperature



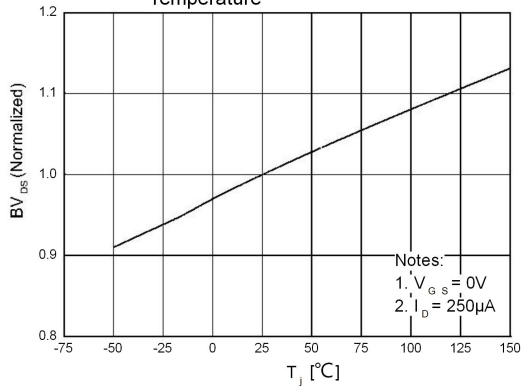
Capacitance Characteristics



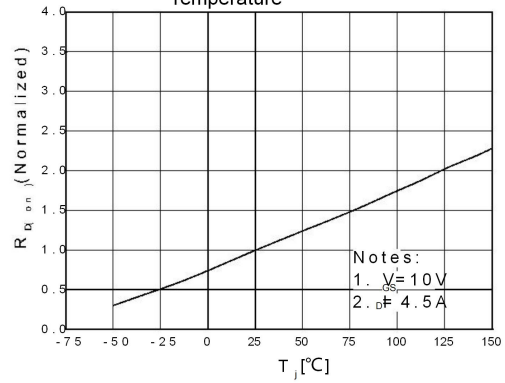
Gate Charge Characteristics



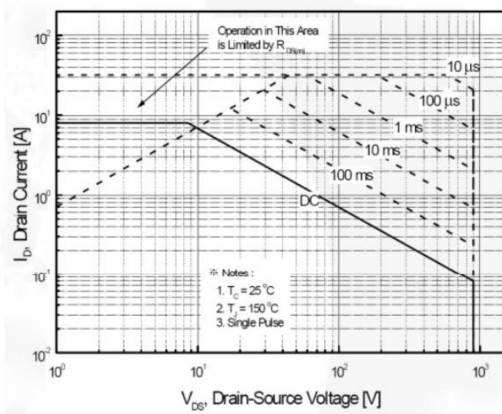
Breakdown Voltage Variation vs.
Temperature



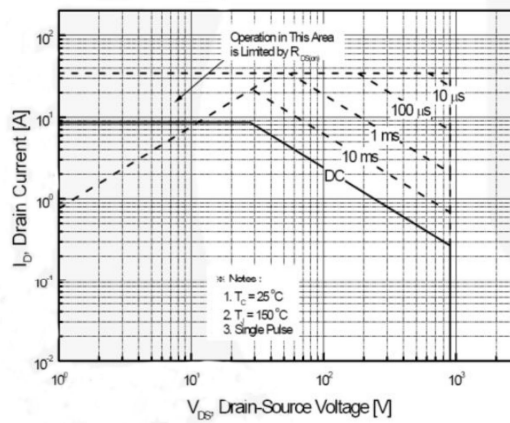
On-Resistance Variation vs.
Temperature



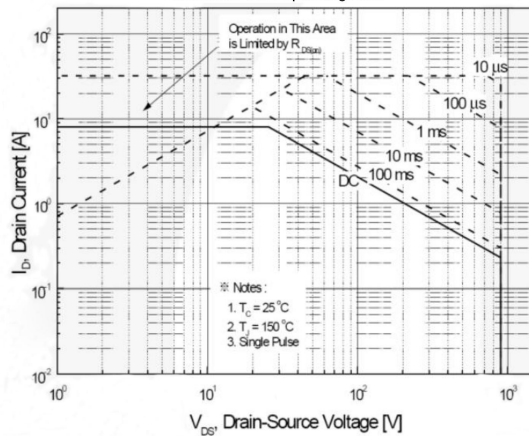
Maximum Safe Operating Area



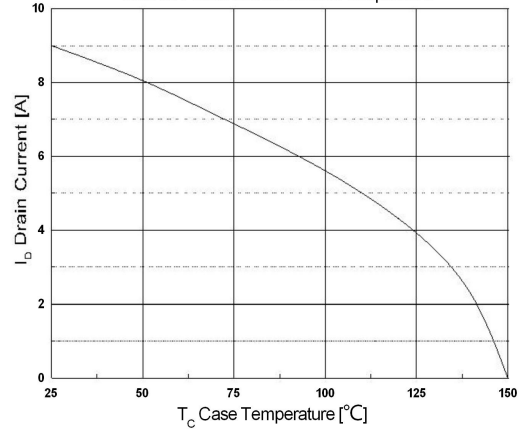
Maximum Safe Operating Area



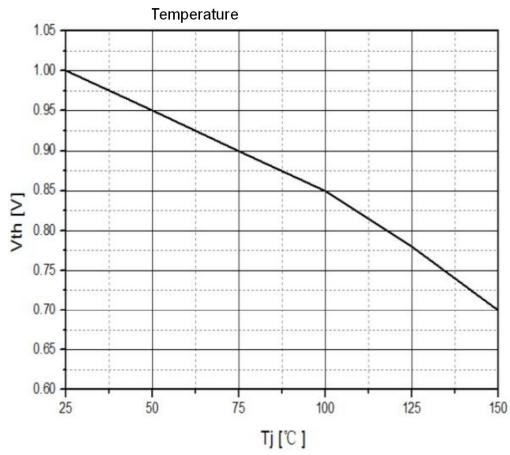
Maximum Safe Operating Area



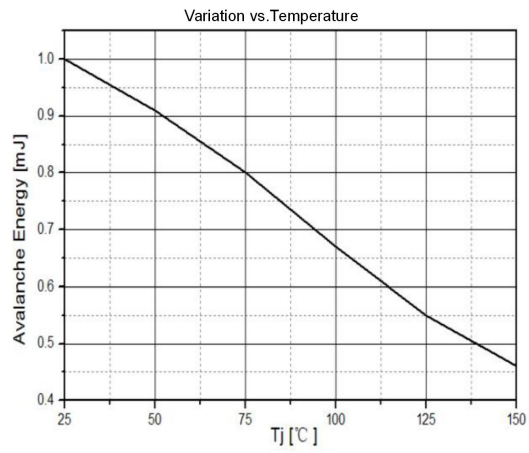
Maximum Drain Current vs. Case Temperature



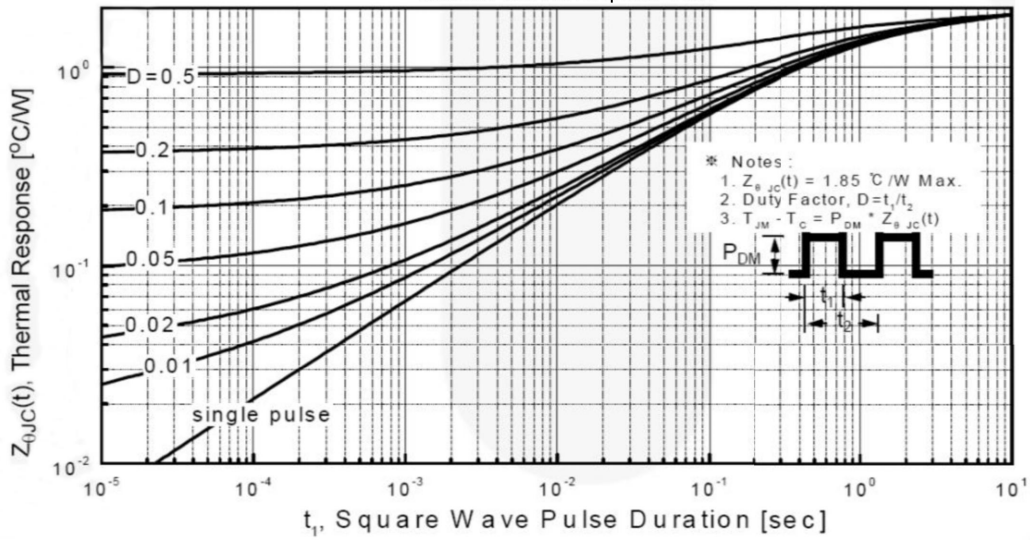
Gate Threshold Voltage Variation vs.



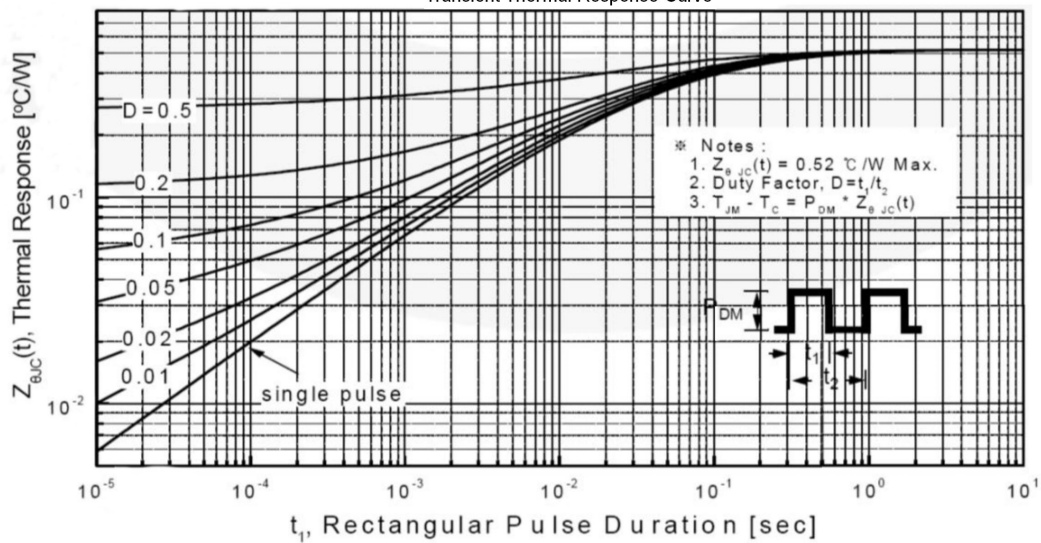
Single Pulsed Avalanche Energy

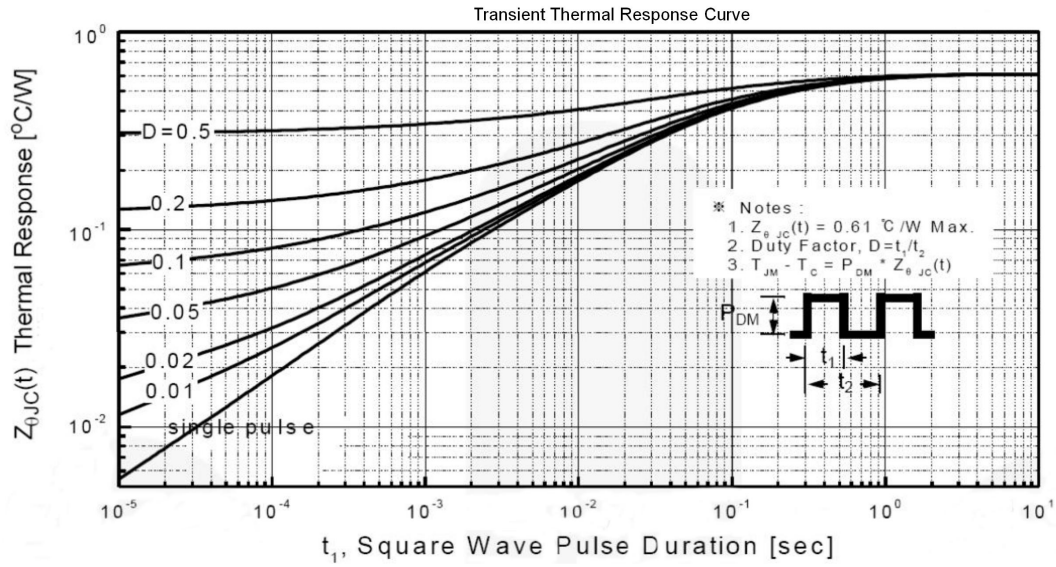


Transient Thermal Response Curve

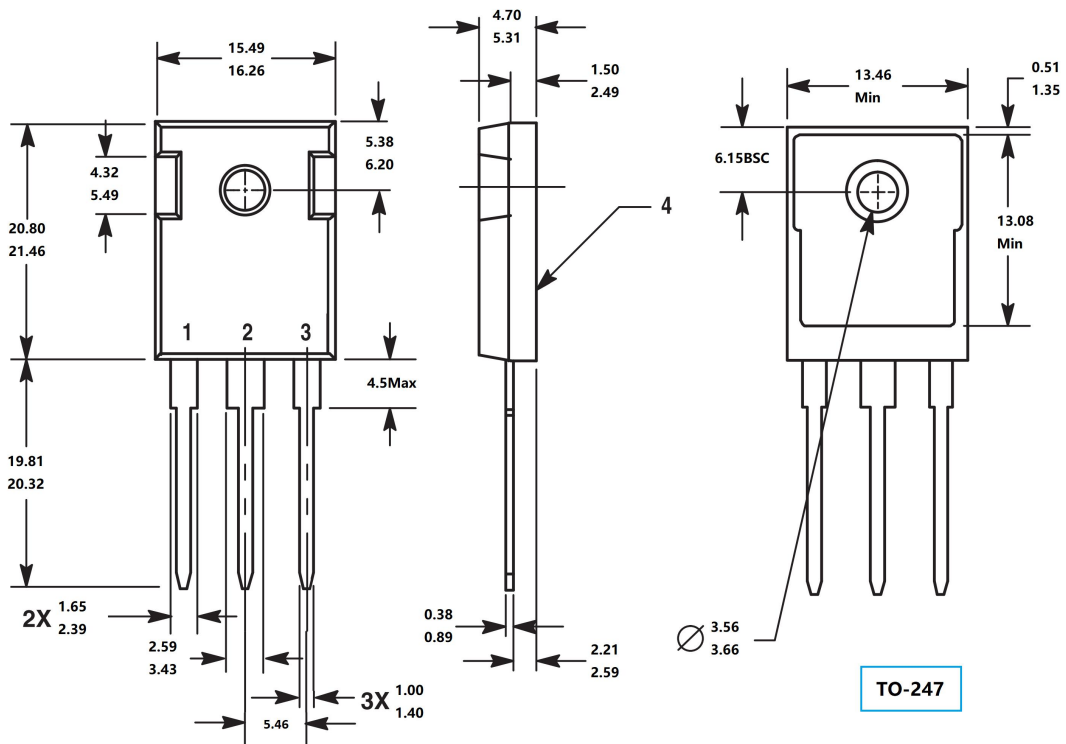


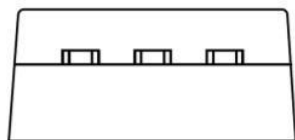
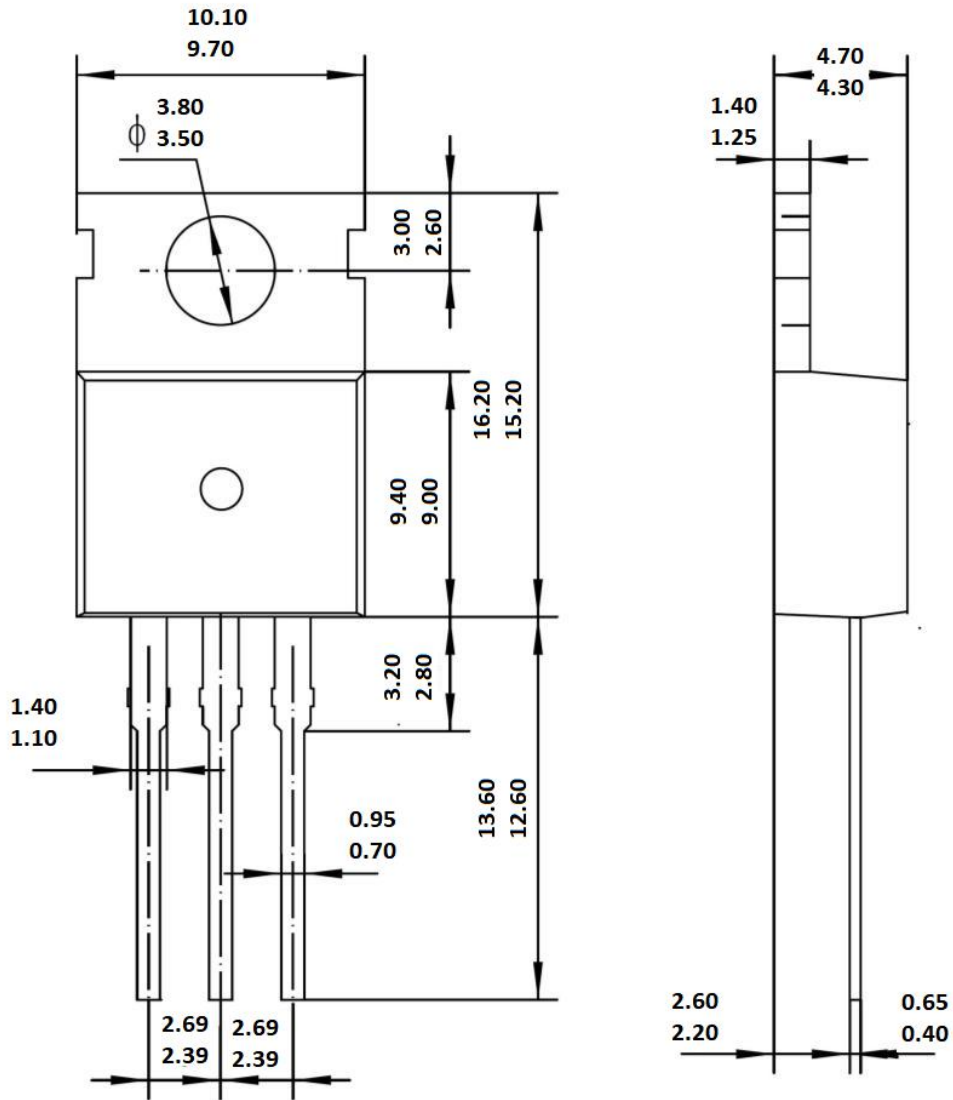
Transient Thermal Response Curve





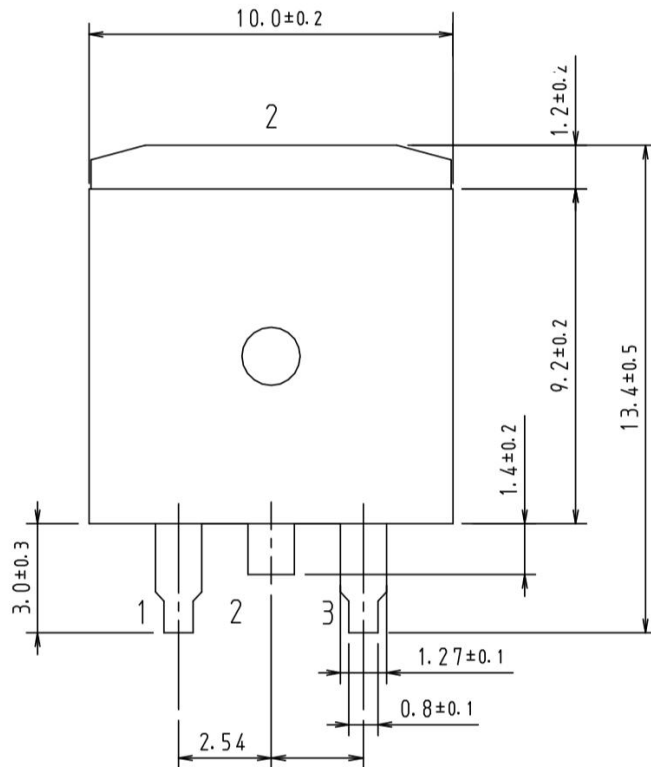
Package Mechanical DATA





TO-220

Unit: mm



TO-263

Unit:mm

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