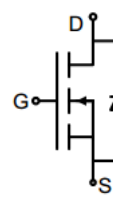
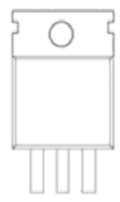



N-Channel MOSFET

<p>Description</p> <p>GT070N15T use advanced technology to provide low $R_{DS(ON)}$, low gate charge, fast switching and excellent avalanche characteristics. This device is specially designed to get better ruggedness and suitable to use in motor control applications.</p> <p>General Features</p> <ul style="list-style-type: none"> ● V_{DS} 150V ● I_D (at $V_{GS} = 10V$) 140A ● $R_{DS(ON)}$ (at $V_{GS} = 10V$) < 7mΩ ● 100% Avalanche Tested ● RoHS Compliant <p>Application</p> <ul style="list-style-type: none"> ● Power switch ● DC/DC converters 	 <p>Schematic diagram</p>  <p>Marking and pin assignment</p>  <p>TO-220</p>
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Device	Package	Marking	Packaging
GT070N15T	TO-220	GT070N15	50pcs/Tube

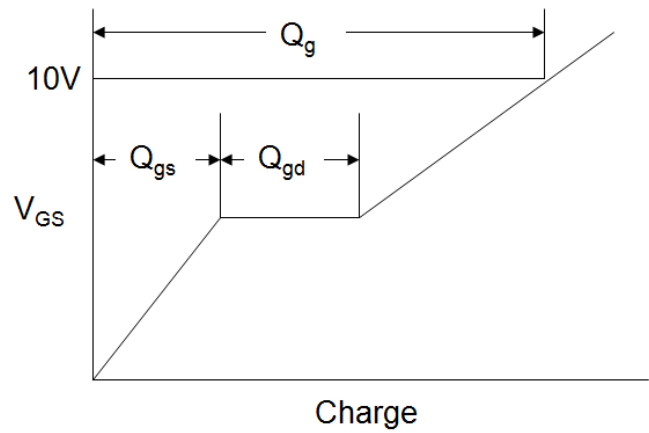
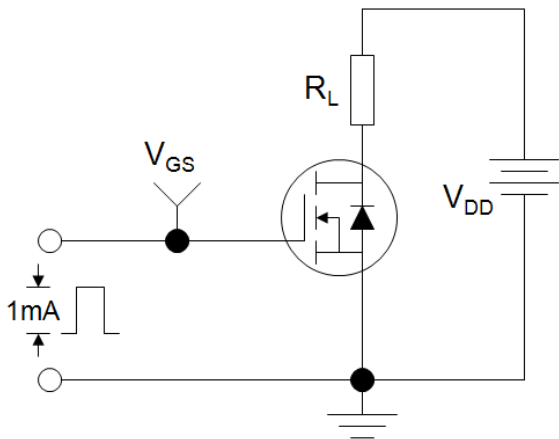
Absolute Maximum Ratings $T_C = 25^\circ C$, unless otherwise noted			
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Continuous Drain Current	I_D	140	A
Pulsed Drain Current (note1)	I_{DM}	560	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	P_D	400	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	$^\circ C$

Thermal Resistance			
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	R_{thJC}	0.372	$^\circ C/W$

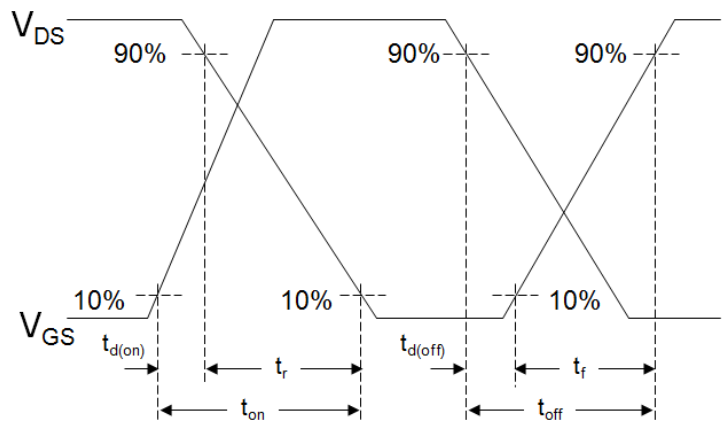
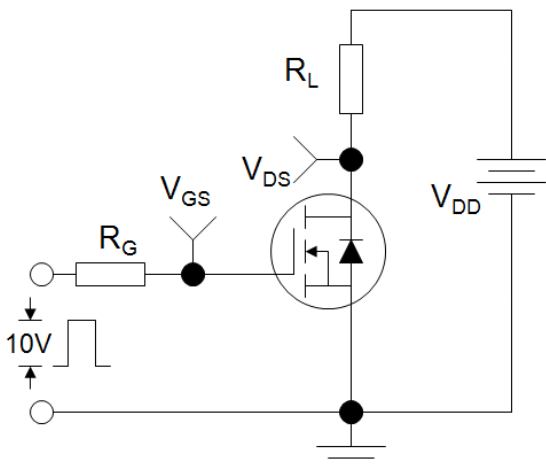
Specifications $T_J = 25^\circ\text{C}$, unless otherwise noted						
Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	150	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 150V, V_{GS} = 0V$	--	--	1	μA
Gate-Source Leakage	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	--	--	± 100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.5	--	4.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 40A$	--	5.8	7.0	m Ω
Dynamic Parameters						
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=15A$	20	--	--	S
Input Capacitance	C_{iss}	$V_{GS} = 0V,$ $V_{DS} = 25V,$ $f = 1.0MHz$	--	10305	--	pF
Output Capacitance	C_{oss}		--	2273	--	
Reverse Transfer Capacitance	C_{riss}		--	466	--	
Total Gate Charge	Q_g	$V_{DS} = 75V,$ $I_D = 70A,$ $V_{GS} = 10V$	--	177	--	nC
Gate-Source Charge	Q_{gs}		--	62	--	
Gate-Drain Charge	Q_{gd}		--	58	--	
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 30V,$ $I_D = 40A,$ $V_{GS} = 10V,$ $R_G = 2.5\Omega$	--	15	--	nS
Turn-on Rise Time	t_r		--	32.3	--	
Turn-off Delay Time	$t_{d(off)}$		--	24	--	
Turn-off Fall Time	t_f		--	15	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S		--	140	--	A
Pulsed Source-Drain Current	I_{SDM}		--	560	--	A
Body Diode Voltage (note1)	V_{SD}	$T_J = 25^\circ\text{C}, I_{SD} = 40A, V_{GS} = 0V$	--	0.9	0.99	V
Reverse Recovery Time (note1)	t_{rr}	$I_S = 30A, V_{GS} = 0V$ $di/dt = 100A/\mu s$	--	45	--	nS
Reverse Recovery Charge (note1)	Q_{rr}		--	80	--	nC

Notes 1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 1.5\%$, $R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$

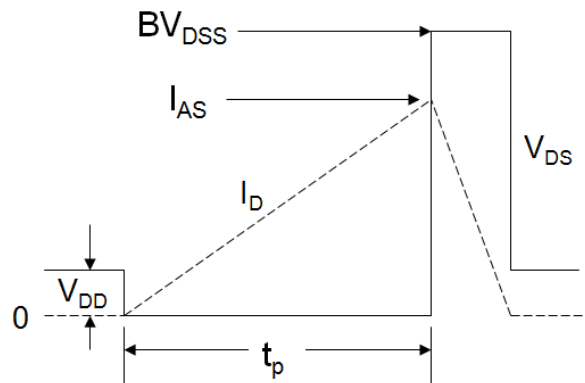
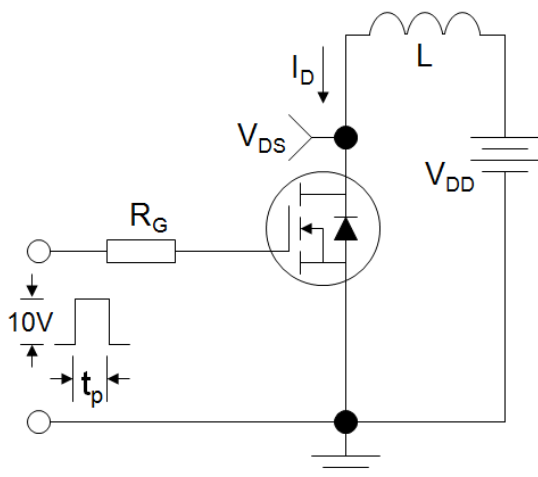
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS (Curves)

Figure1. Output Characteristics

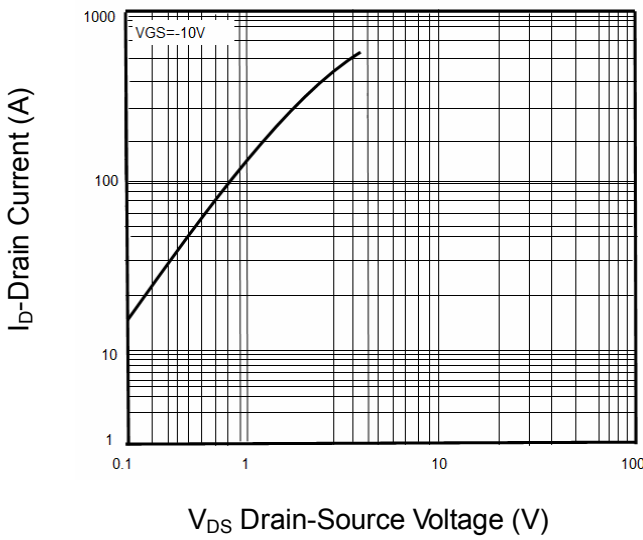


Figure2. Transfer Characteristics

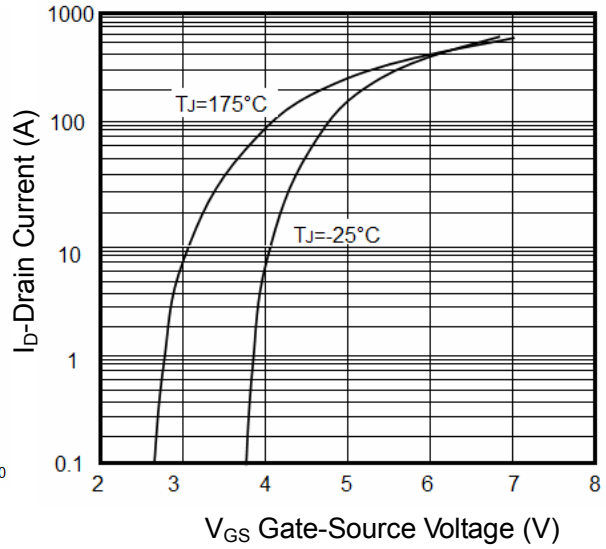


Figure3. BVDSS vs Junction Temperature

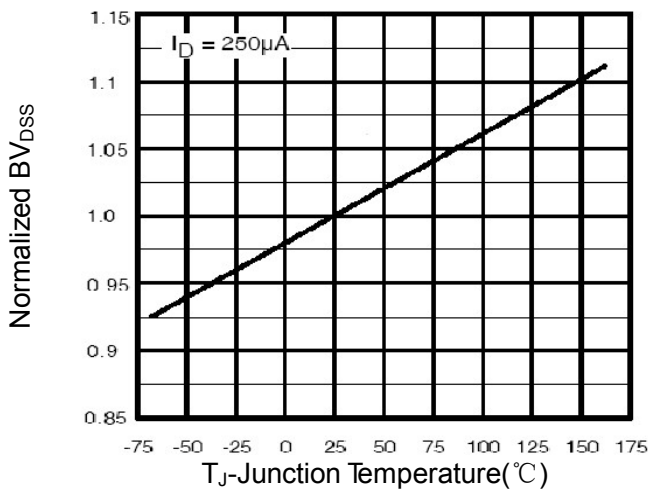


Figure4. ID vs Junction Temperature

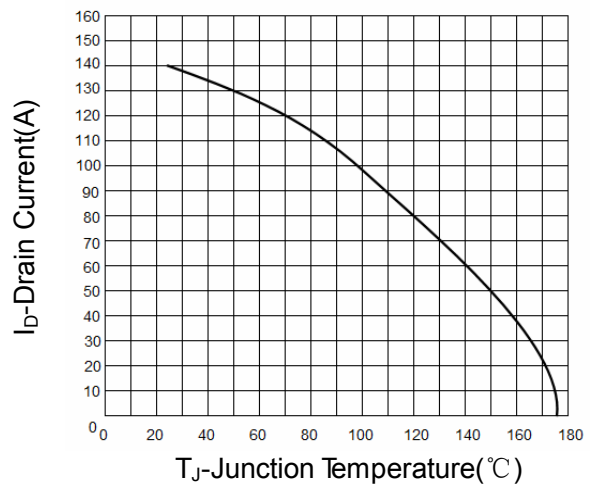


Figure5. VGS(th) vs Junction Temperature

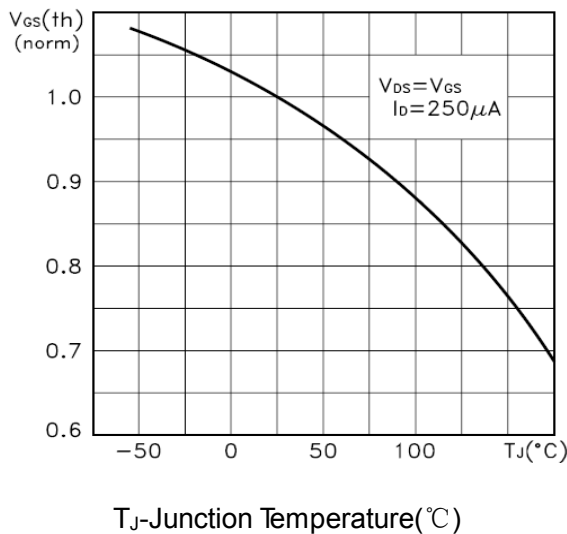


Figure6. Rds(on) Vs Junction Temperature

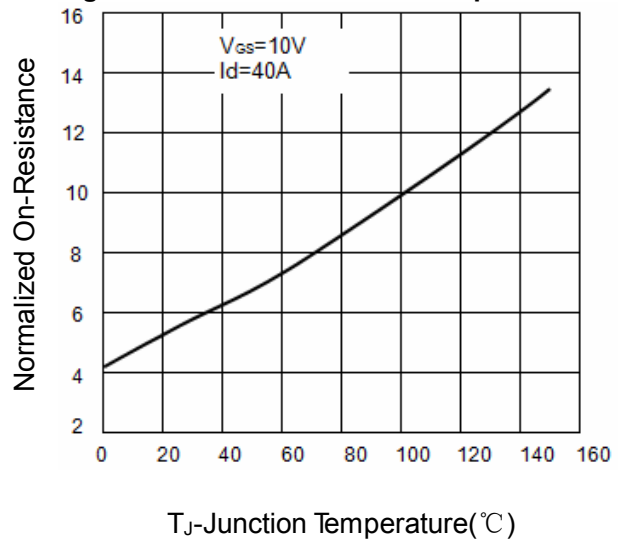


Figure7. Gate Charge

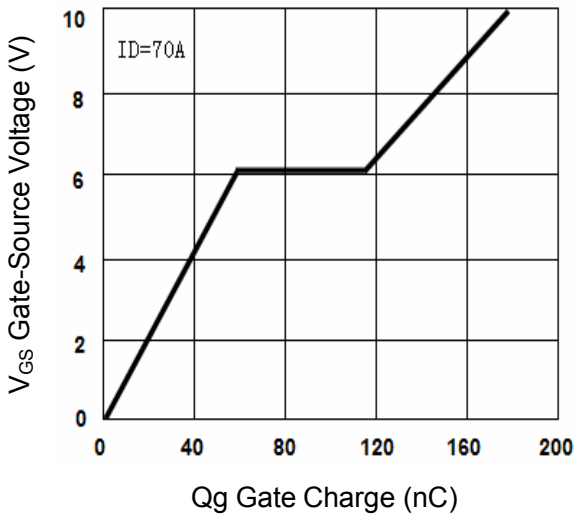


Figure8. Capacitance vs Vds

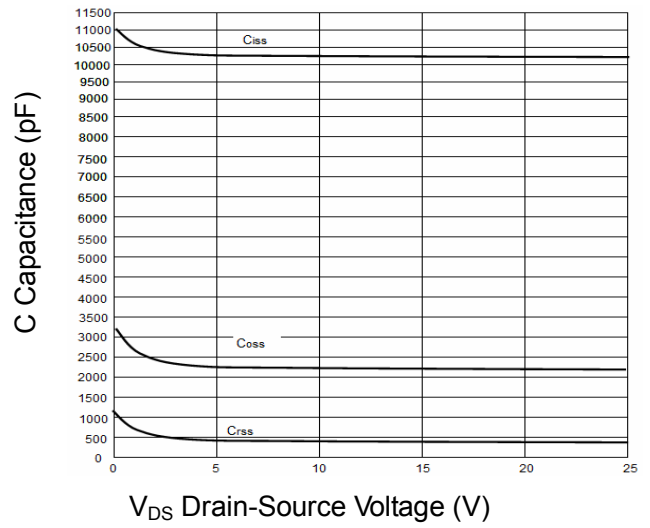


Figure9. Source- Drain Diode Forward

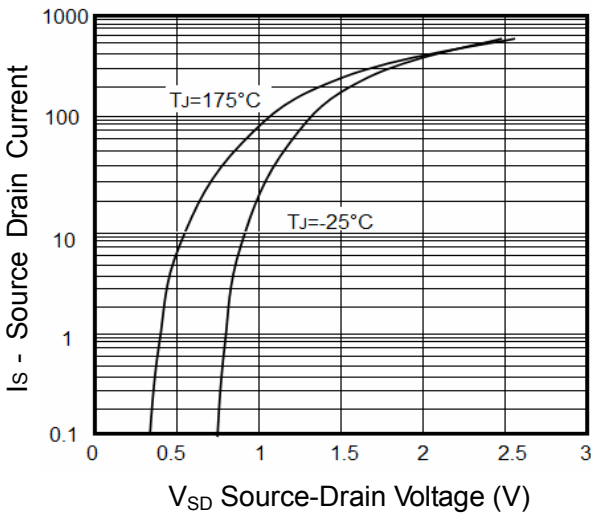


Figure10. Safe Operation Area

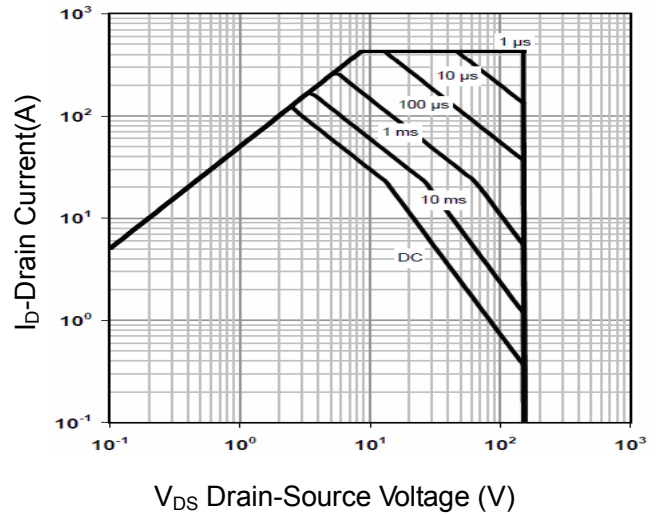
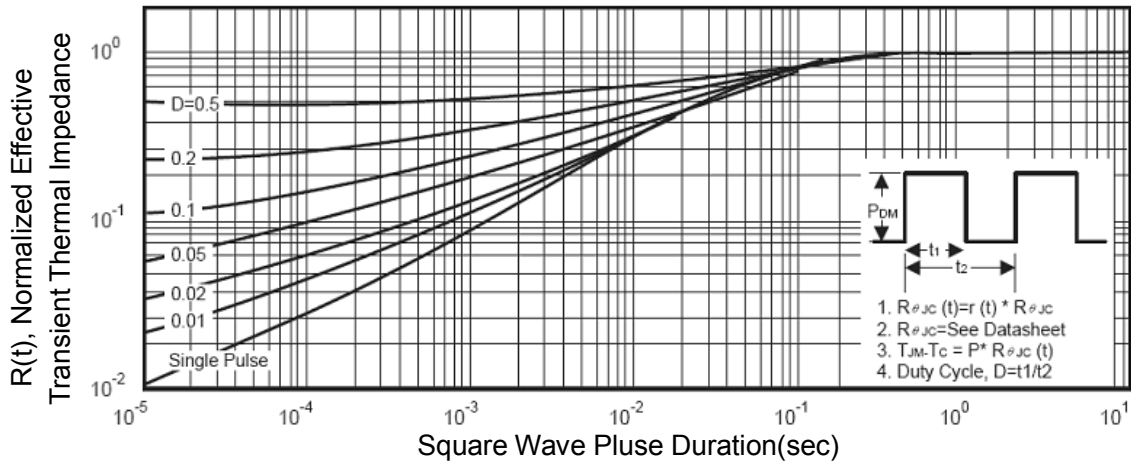
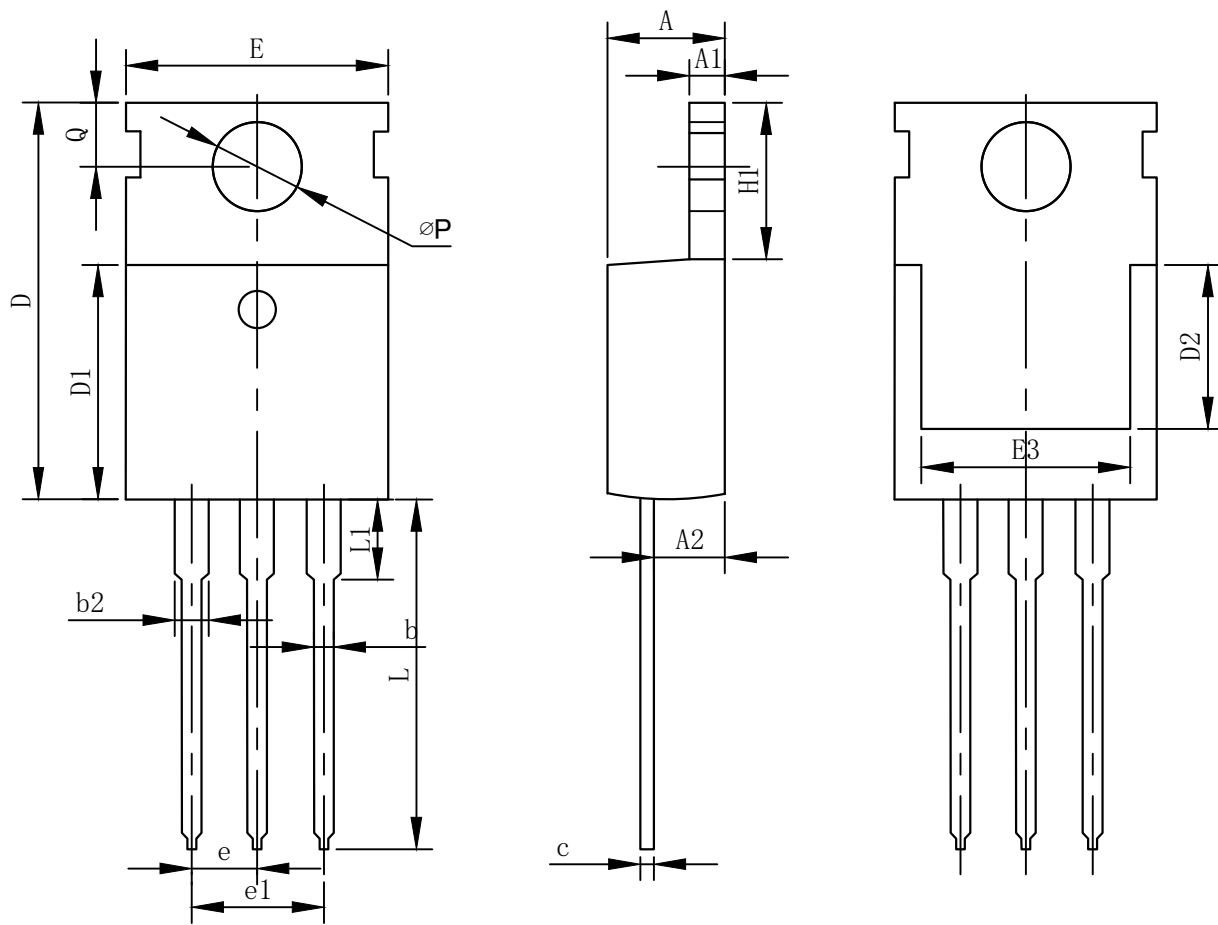


Figure11. Normalized Maximum Transient Thermal Impedance



TO-220 Package information



COMMON DIMENSIONS

SYMBOL	mm		
	MIN	NOM	MAX
A	4.37	4.57	4.70
A1	1.25	1.30	1.40
A2	2.20	2.40	2.60
b	0.70	0.80	0.95
b2	1.70	1.27	1.47
c	0.45	0.50	0.60
D	15.10	15.60	16.10
D1	8.80	9.10	9.40
D2	5.50	-	-
E	9.70	10.00	10.30
E3	7.00	-	-
e	2.54BSC		
e1	5.08BSC		
H1	6.25	6.50	6.85
L	12.75	13.50	13.80
L1	-	3.10	3.40
øP	3.40	3.60	3.80
Q	2.60	2.80	3.00