

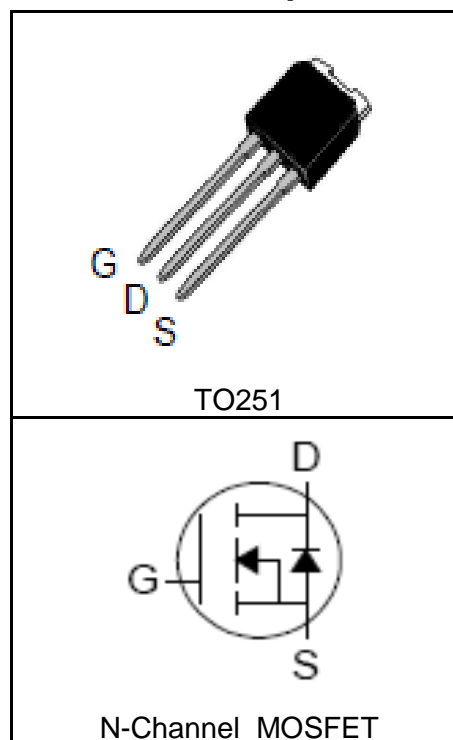
Features

- 700V/2A,
 $R_{DS(ON)} = 5000m\Omega(Typ.)@V_{GS}=10V$
- Super High Dense Cell Design
- Fast Switching
- 100% avalanche tested
- Lead Free and Green Devices Available (RoHS Compliant)

Applications

- High efficiency switch mode power supplies

Pin Description



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C=25^\circ C$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	700	V
V_{GSS}	Gate-Source Voltage	± 30	
T_J	Maximum Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
I_S	Diode Continuous Forward Current	$T_C=25^\circ C$ 2	A
Mounted on Large Heat Sink			
$I_{DP}^{①}$	300 μs Pulse Drain Current Tested	$T_C=25^\circ C$ 8	A
$I_D^{②}$	Continuous Drain Current($V_{GS}=10V$)	$T_C=25^\circ C$ 2	A
		$T_C=100^\circ C$ 1.3	
P_D	Maximum Power Dissipation	$T_C=25^\circ C$ 56	W
		$T_C=100^\circ C$ 22	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	2.2	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	100	$^\circ C/W$
Drain-Source Avalanche Ratings			
$E_{AS}^{③}$	Avalanche Energy, Single Pulsed	5	mJ

Electrical Characteristics ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)

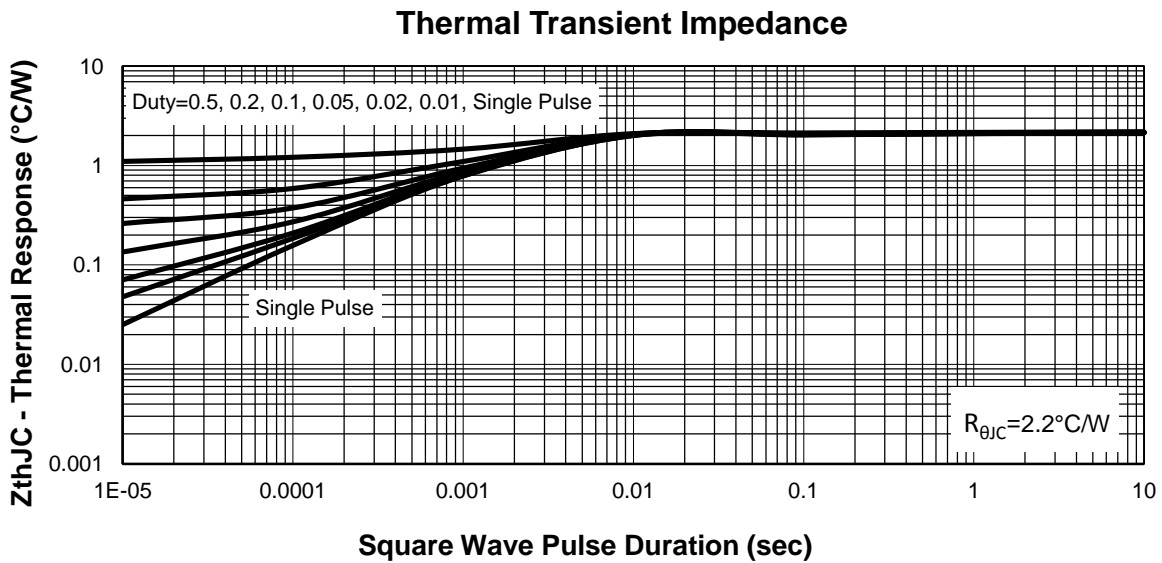
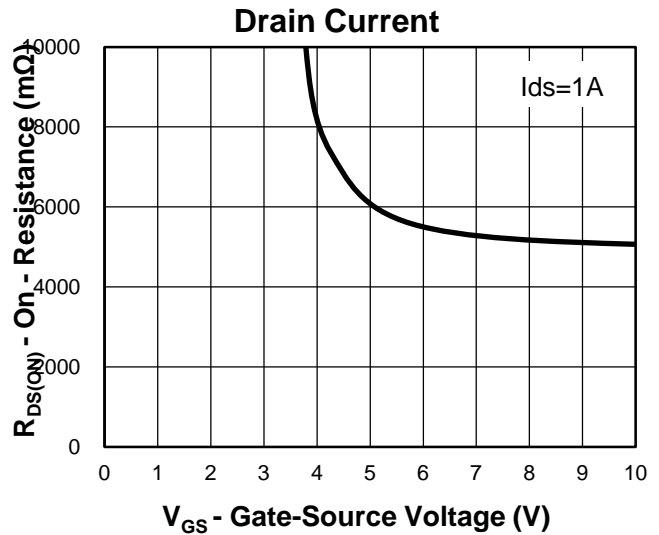
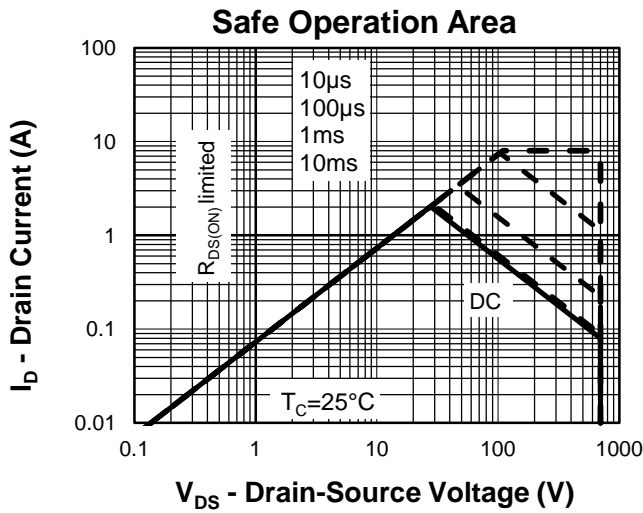
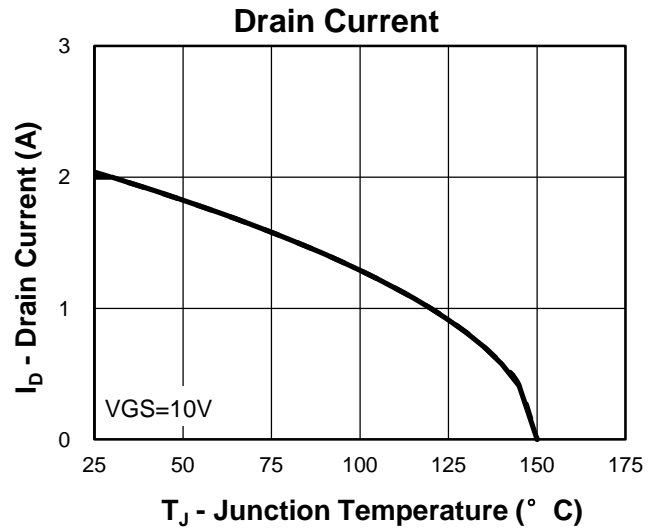
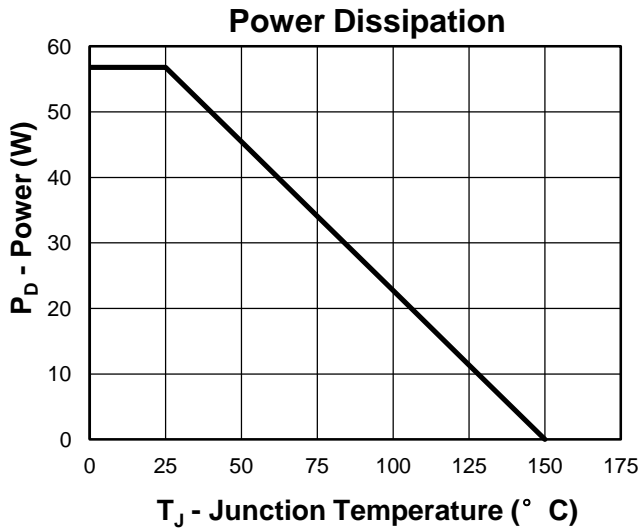
Symbol	Parameter	Test Condition	RU7H2K			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	700			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=700V, V_{GS}=0V$			1	μA
		$T_J=125^\circ C$			30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2		4	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}^{(4)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=1A$		5000	6500	m Ω
Diode Characteristics						
$V_{SD}^{(4)}$	Diode Forward Voltage	$I_{SD}=2A, V_{GS}=0V$			1.2	V
t_{rr}	Reverse Recovery Time	$I_{SD}=2A, di_{SD}/dt=100A/\mu s$		210		ns
Q_{rr}	Reverse Recovery Charge			2		μC
Dynamic Characteristics ^⑤						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$		3		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=350V,$ Frequency=1.0MHz		280		pF
C_{oss}	Output Capacitance			40		
C_{riss}	Reverse Transfer Capacitance			5		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=350V, R_L=175\Omega,$ $I_{DS}=2A, V_{GEN}=10V,$ $R_G=25\Omega$		30		ns
t_r	Turn-on Rise Time			70		
$t_{d(OFF)}$	Turn-off Delay Time			85		
t_f	Turn-off Fall Time			55		
Gate Charge Characteristics ^⑤						
Q_g	Total Gate Charge	$V_{DS}=560V, V_{GS}=10V,$ $I_{DS}=2A$		10		nC
Q_{gs}	Gate-Source Charge			1.6		
Q_{gd}	Gate-Drain Charge			4		

- Notes:
- ① Pulse width limited by safe operating area.
 - ② Calculated continuous current based on maximum allowable junction temperature.
 - ③ Limited by $T_{Jmax}, I_{AS}=3A, V_{DD}=100V, R_G=50\Omega$, Starting $T_J=25^\circ C$.
 - ④ Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - ⑤ Guaranteed by design, not subject to production testing.

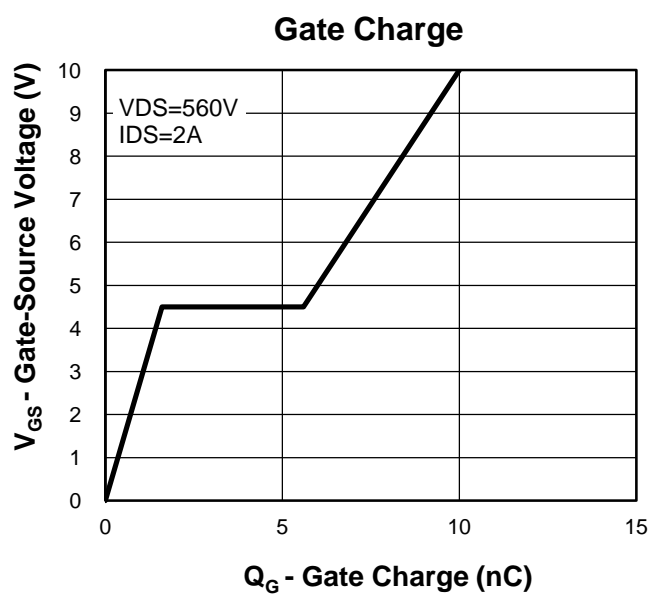
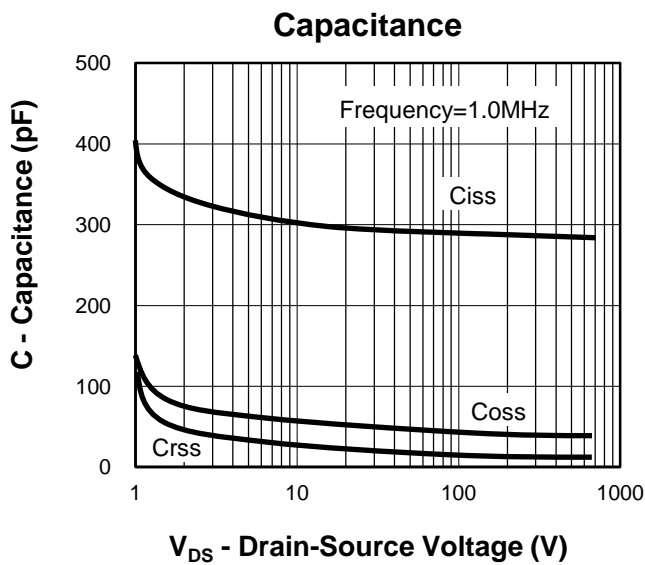
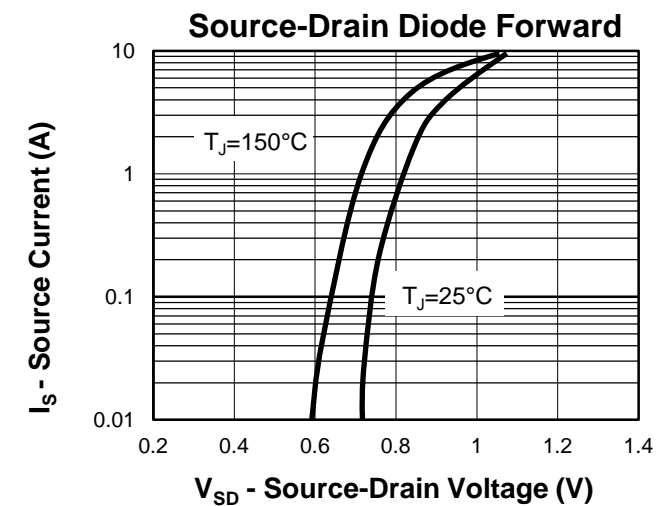
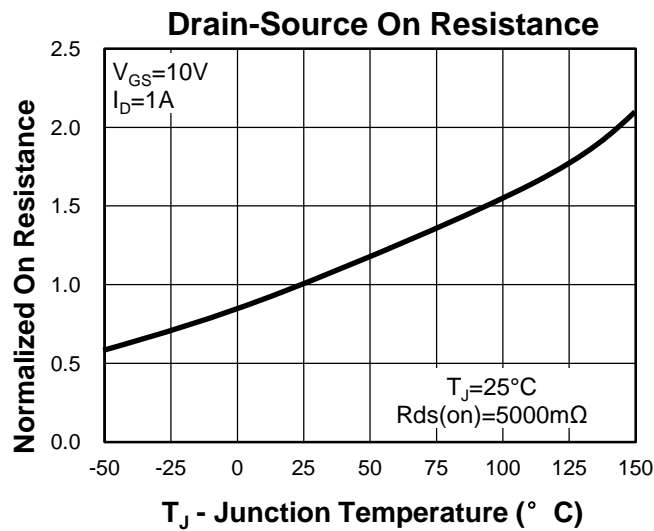
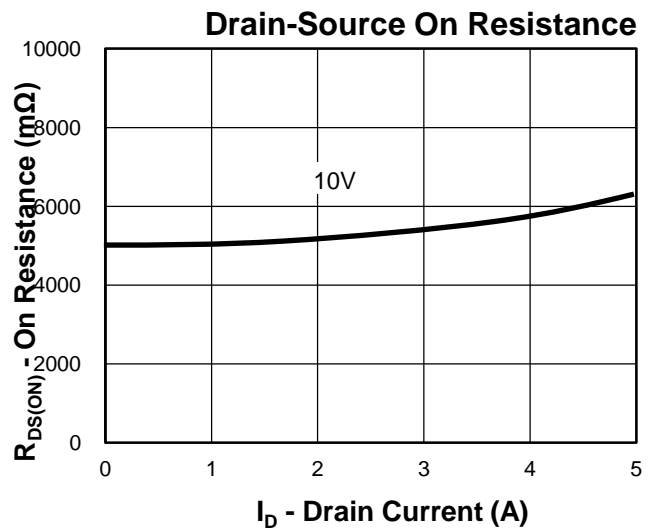
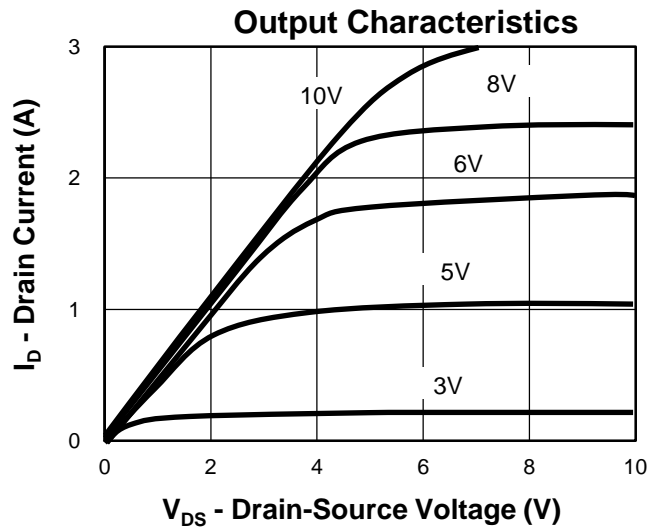
Ordering and Marking Information

Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU7H2K	RU7H2K	TO251	Tube	75	-	-
RU7H2K2	RU7H2K	TO251-S	Tube	75	-	-

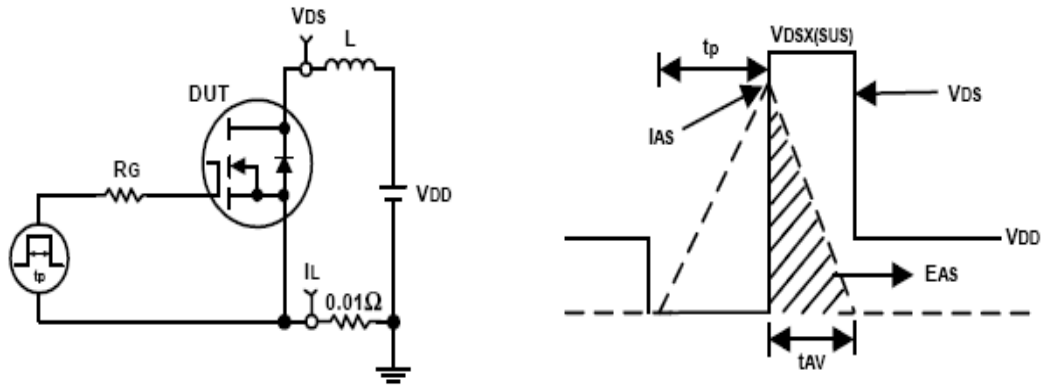
Typical Characteristics



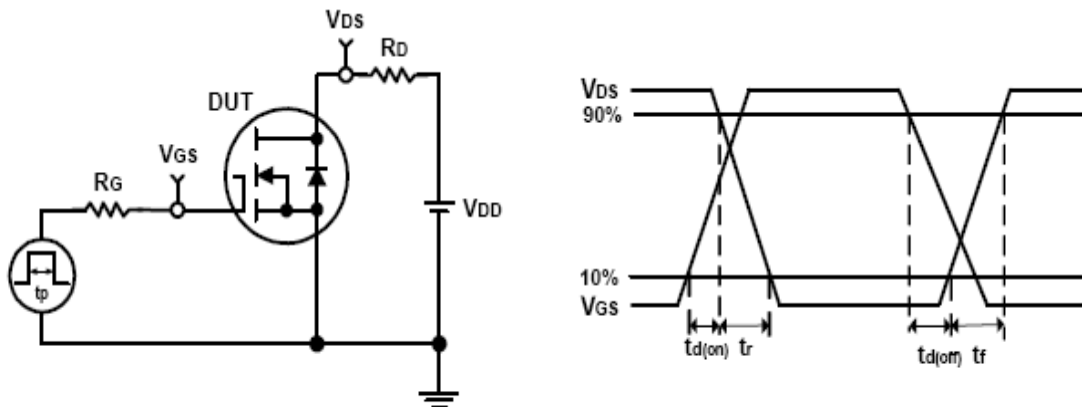
Typical Characteristics



Avalanche Test Circuit and Waveforms

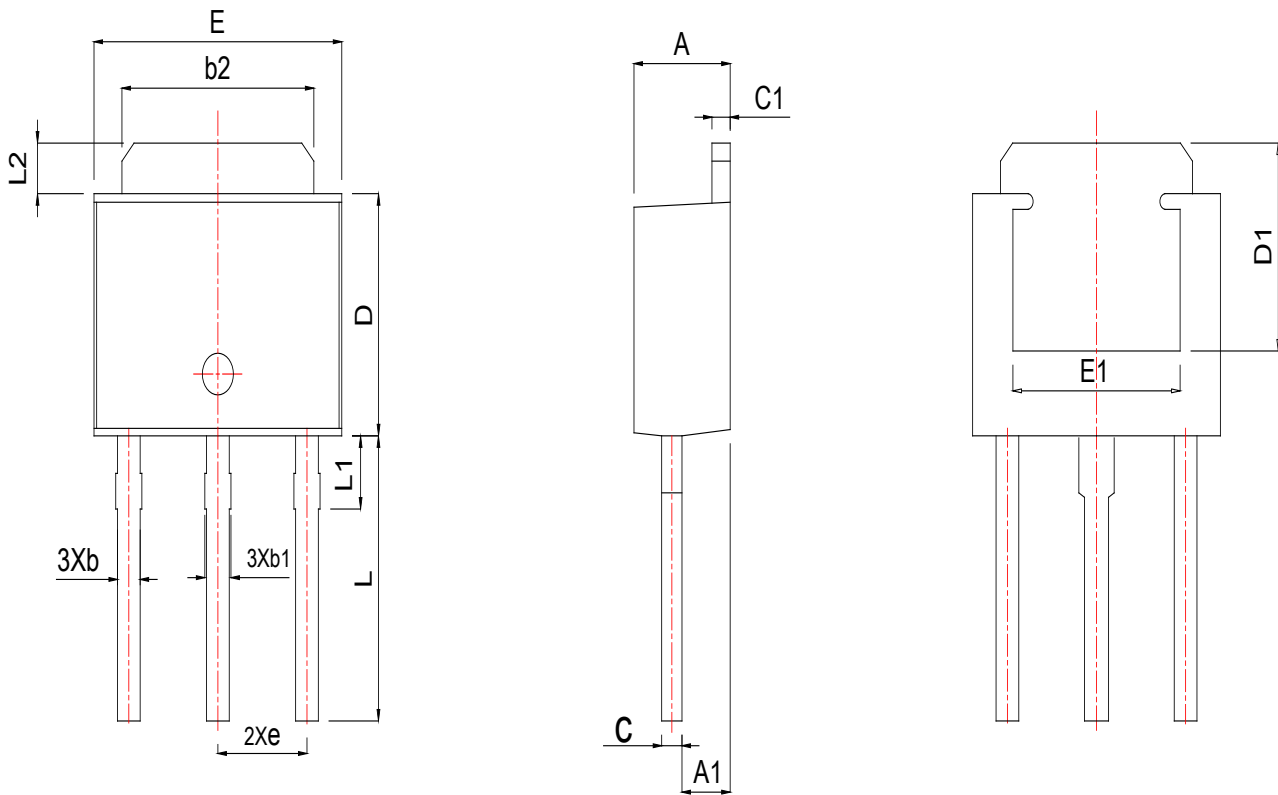


Switching Time Test Circuit and Waveforms



Package Information

TO251



SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	2.220	2.320	2.420	0.087	0.091	0.095
A1	0.890	1.015	1.140	0.035	0.040	0.045
b	0.550	0.610	0.670	0.022	0.024	0.026
b1	0.760	0.860	0.960	0.030	0.034	0.038
b2	5.200	5.300	5.400	0.205	0.209	0.213
c	0.460	0.515	0.570	0.018	0.020	0.022
c1	0.450	0.500	0.550	0.018	0.020	0.022
D	5.950	6.100	6.250	0.234	0.240	0.246
D1	4.200	4.350	4.500	0.165	0.171	0.177
E	6.400	6.550	6.700	0.252	0.258	0.264
E1	4.750	4.800	4.850	0.187	0.189	0.191
e	2.280 REF			0.090 REF		
L	8.900	9.200	9.500	0.350	0.362	0.374
L1	1.900	2.095	2.290	0.075	0.082	0.090
L2	0.900	0.950	1.000	0.035	0.037	0.039

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