

650V N沟道增强型超结功率场效应管 **650V N-CHANNEL Super-Junction POWER MOSFET**
11A/650V

Discription
 JXM65R380D This N-Channel enhancement mode power MOSFET is produced using advanced Super Junction technology. It achieves low conduction loss and switching losses. It leads the design engineers to their power converters with high efficiency, high power density, and superior thermal behavior. Furthermore, it's universal applicable, i.e., suitable for hard and soft switching topologies.

Features

- $V_{DS}=650V$, $I_D=11A$
- $R_{DS(on) (max.)}=380 m\Omega @ V_{GS}=10V$
- New revolutionary high voltage technology
- Ultra low gate charge
- High peak current capability

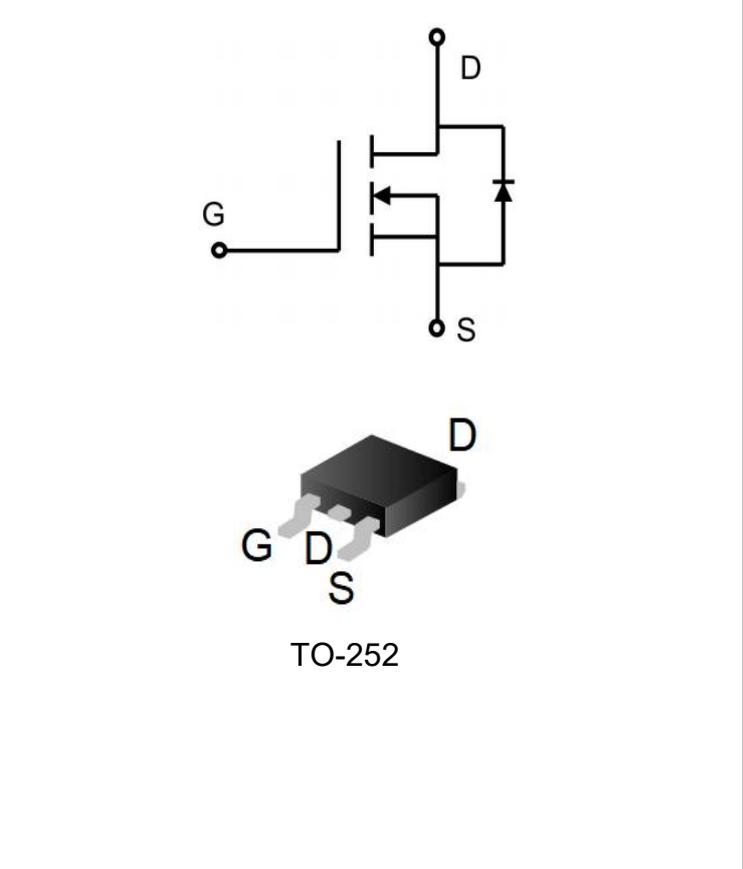
100% UIS TESTED!
100% ΔV_{ds} TESTED!

Applications

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)
- LED lighting power

Note

- Products made by JUXIN semiconductor



ORDERING INFORMATION

Part No.	Package	Marking	Material	Packing
JXM65R380D	TO-252	JXM65R380D	Pb free	Tape and Reel

ABSOLUTE MAXIMUM RATINGS ($T_J=25^\circ C$ unless otherwise noted)

Characteristics	Symbol	Ratings	Unit
Drain-Source Voltage ($V_{GS}=0V$)	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	± 20	V
Gate-Source Voltage ($V_{DS}=0V$), AC ($f > 1HZ$)	V_{GS}	± 30	V
Continuous Drain Current	I_D	$T_C=25^\circ C$	11
		$T_C=100^\circ C$	7
Drain Current Pulsed (Note 1)	I_{DM}	44	A
Power Dissipation ($T_C=25^\circ C$) -Derate above $25^\circ C$	PD	23	W
		0.19	W/ $^\circ C$
Single Pulsed Avalanche Energy (Note 2)	E_{AS}	166	mJ
Reverse Diode dv/dt , $V_{DS} \leq 480V$ (Note 3)	dv/dt	15	V/ns
Drain Source Voltage Slope, $V_{DS} \leq 480V$	dV_{ds}/dt	50	V/ns
Operation Junction Temperature Range	T_J	-55 to +150	$^\circ C$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ C$



THERMAL CHARACTERISTICS

Characteristics	Symbol	MAX	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.3	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W
Soldering Temperature, Wave Soldering only Allowed at Leads. (1.6mm from Case for 10s)	T_{sold}	260	°C

ELECTRICAL CHARACTERISTICS

Off Characteristics

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain -Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	650	--	--	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V, T_J = 25^\circ C$	--	--	1.0	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=+20V, V_{DS}=0V$	--	--	100	nA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=-20V, V_{DS}=0V$	--	--	-100	nA

On Characteristics

Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2.5	3.7	4.5	V
Static Drain- Source On State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5.5A$	--	0.32	0.38	Ω
Gate resistance	R_g	$f=1MHz$	--	3.1	--	Ω

Dynamic Characteristics

Input Capacitance	C_{iss}	$V_{DS}=100V, V_{GS}=0V, f=1MHz$	--	678	--	pF
Output Capacitance	C_{oss}		--	30	--	
Reverse Transfer Capacitance	C_{rss}		--	0.9	--	

Switching Characteristics

Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=325V, V_{GS}=10V, R_G=25\Omega, I_D=11A$ (Note 4,5)	--	14	--	ns
Turn-on Rise Time	t_r		--	36	--	
Turn-off Delay Time	$t_{d(off)}$		--	48	--	
Turn-off Fall Time	t_f		--	28	--	
Total Gate Charge	Q_g	$V_{DD}=520V, V_{GS}=0 \text{ to } 10V, I_D=11A$ (Note 4,5)	--	20	--	nC
Gate-Source Charge	Q_{gs}		--	5.7	--	
Gate-Drain Charge	Q_{gd}		--	10	--	

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	I_S	Integral Reverse P-N Junction Diode in the MOSFET	--	--	11	A
Pulsed Source Current	I_{SM}		--	--	44	
Diode Forward Voltage	V_{SD}	$I_S=11A, V_{GS}=0V$	--	0.9	1.4	V
Reverse Recovery Time	T_{rr}	$I_S=11A, V_{GS}=0V, di/dt=100A/\mu S$	--	276	--	ns
Reverse Recovery Charge	Q_{rr}		--	3.34	--	μC

- 注:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J=25^\circ C, V_{DD}=50V, V_G=10V, R_G=25\Omega$.
 3. $I_{SD} \leq I_D, di/dt \leq 200A/\mu s, V_{DD} \leq BV_{DSS},$ Starting $T_J = 25^\circ C$.
 4. Pulse Test: Pulse Width $\leq 300\mu s,$ Duty Cycles $\leq 2\%$.
 5. Essentially Independent of Operating Temperature Typical Characteristics.

典型特性曲线

Fig.1: Output Characteristics

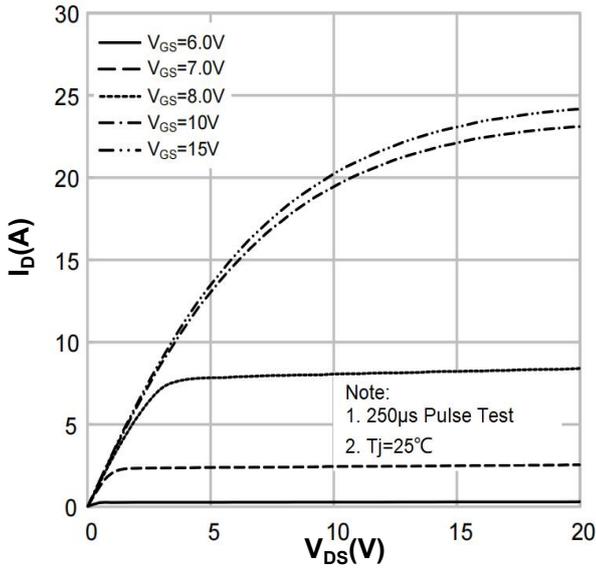


Fig.2: Typical Transfer Characteristics

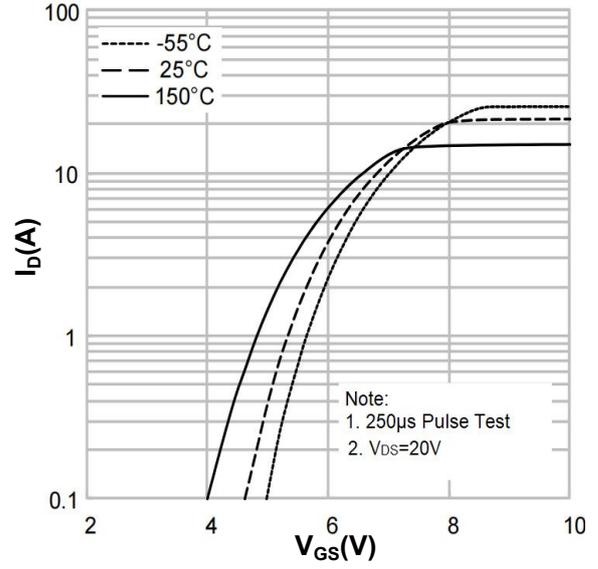


Fig.3: Typical On-resistance vs. Drain Current

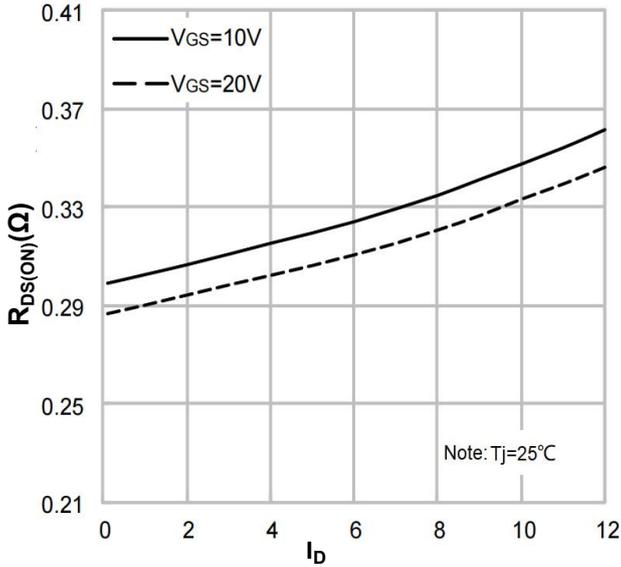


Fig.4: Typical Body Diode Forward Voltage

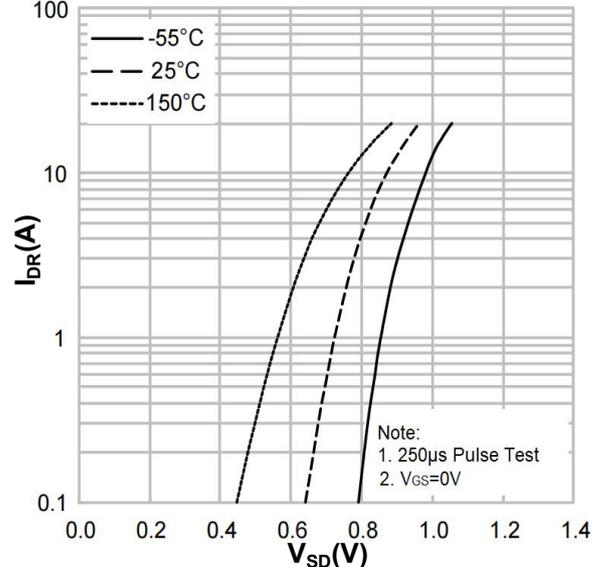


Fig.5: Typical Capacitance Characteristics

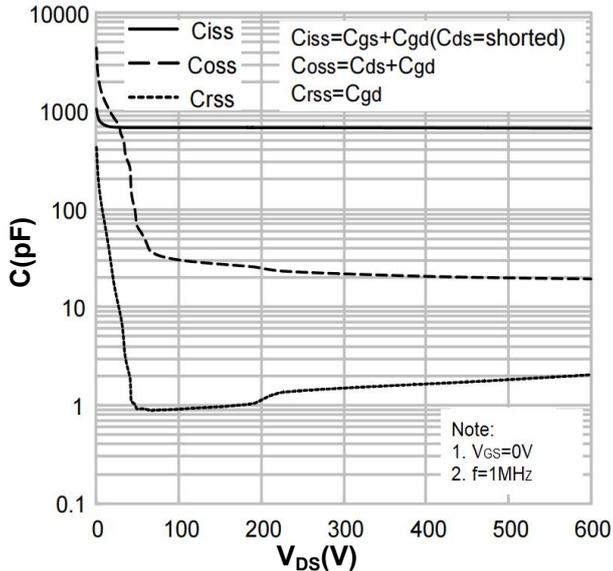
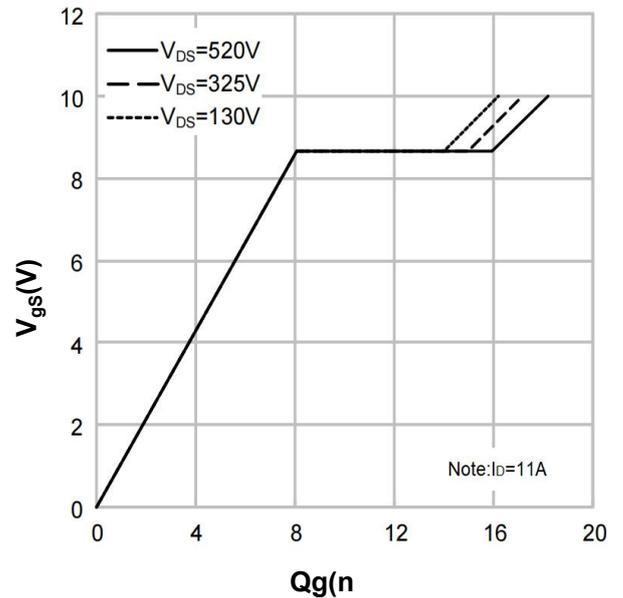


Fig.6: Typical Gate Charge Characteristics



The curve above is for reference only.

典型特性曲线

Fig.7: Normalized Breakdown Voltage vs. Junction Temperature

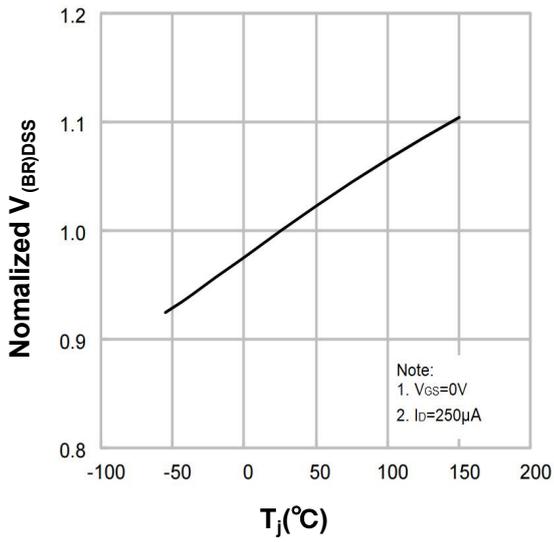


Fig.8: Normalized on Resistance vs. Junction Temperature

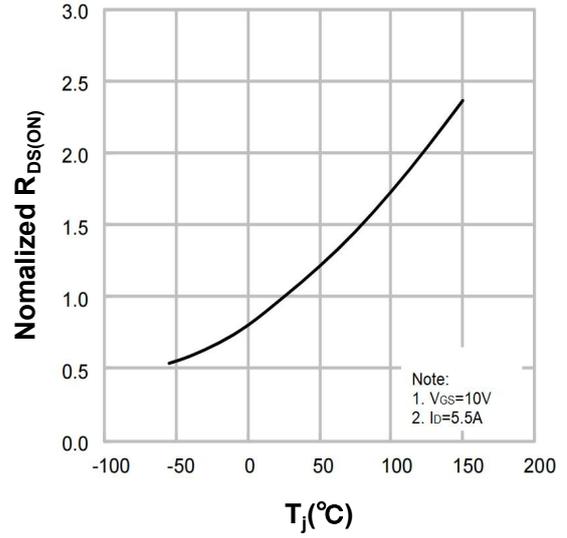
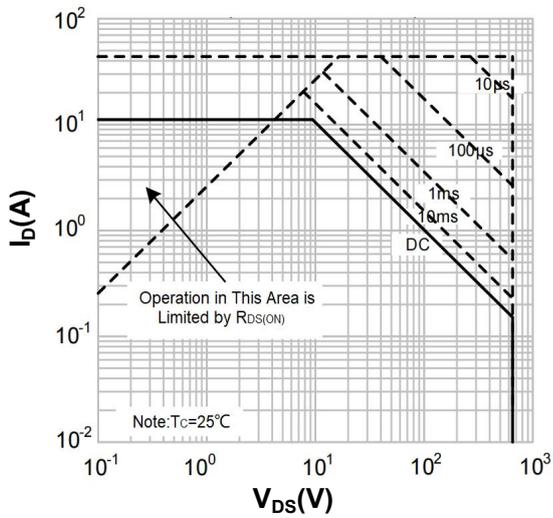
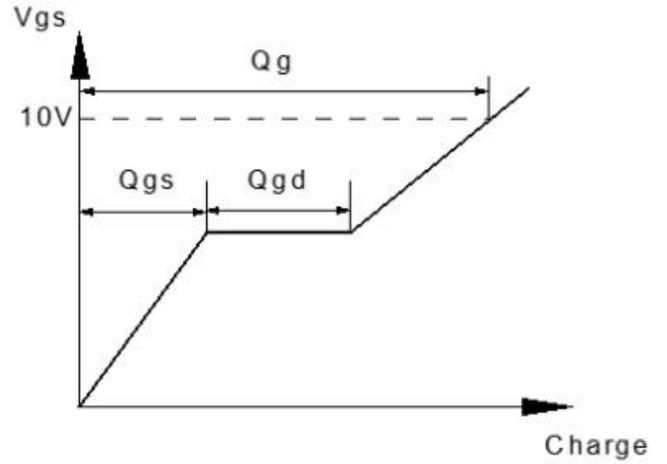
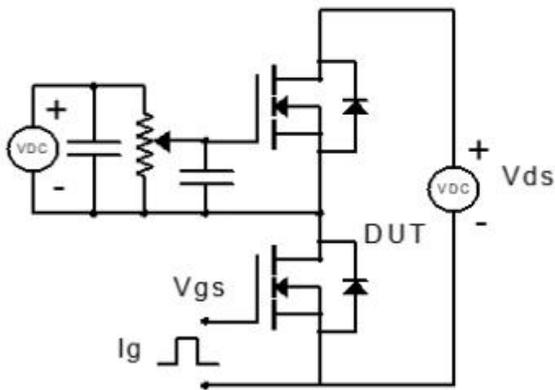


Fig.9: Maximum Safe Operating Area

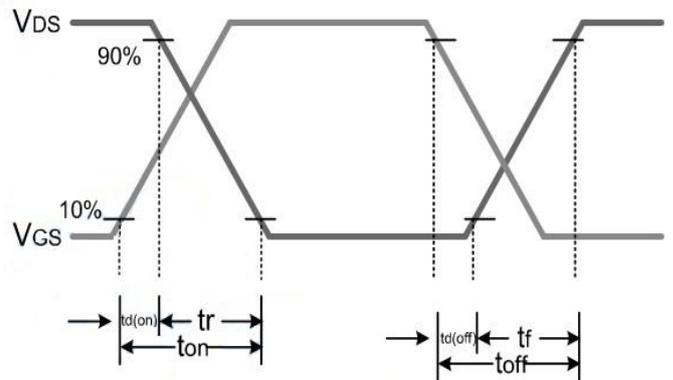
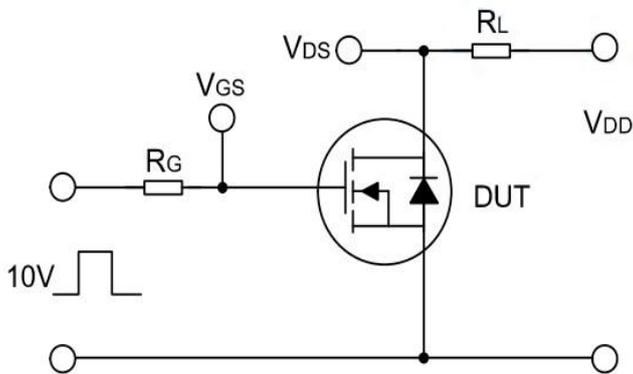


Test Circuit

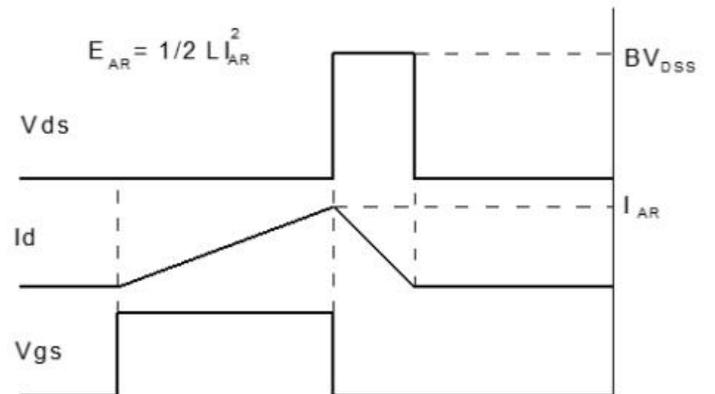
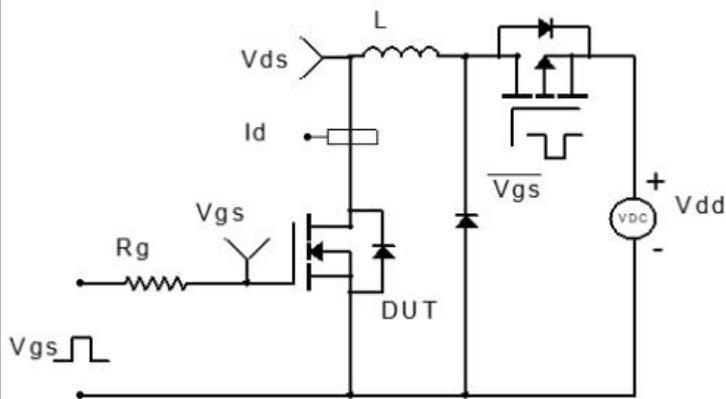
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveform

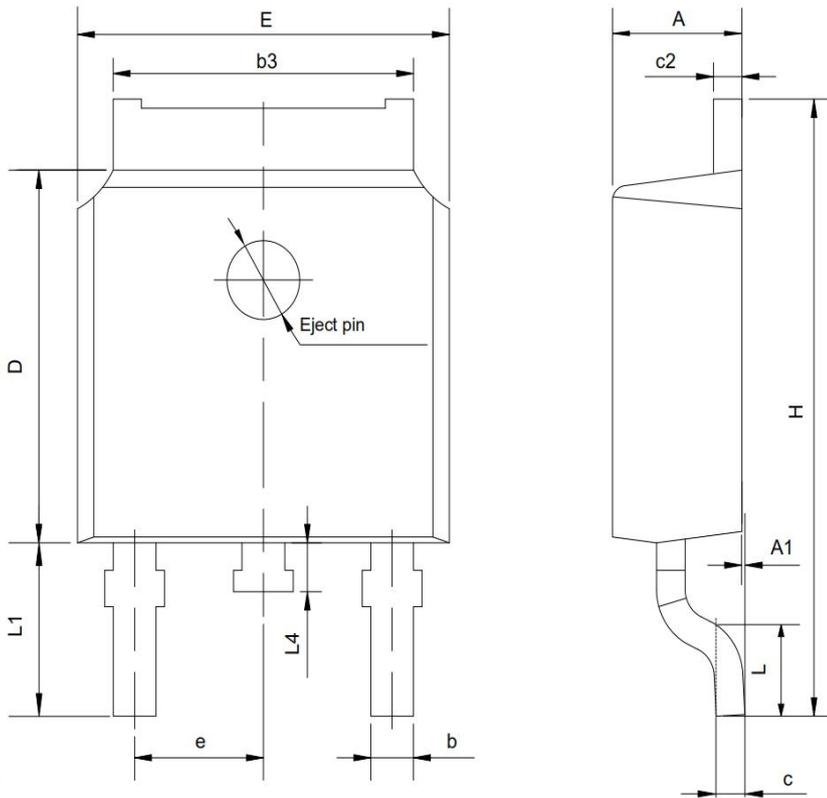


Unclamped Inductive Switching Test Circuit & Waveform



Package Dimensions of TO-252

Unit:mm



SYMBOL	MILIMETER	
	MIN	MAX
A	2.10	2.50
A1	0.00	0.13
b	0.66	0.89
b3	5.10	5.55
c	0.40	0.65
c2	0.40	0.65
D	5.80	6.40
E	6.30	6.90
e	2.286BSC	
H	9.50	10.70
L	1.40	1.75
L1	2.90REF	
L4	0.60	1.00

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