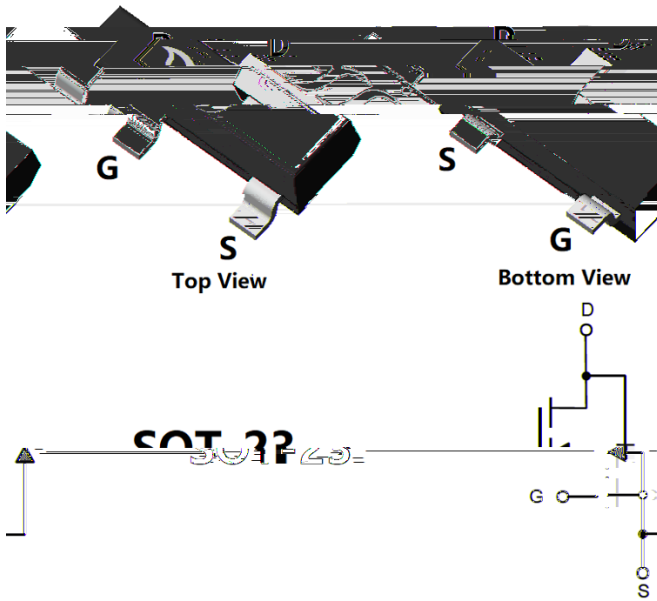




## N-Channel Enhancement Mode Field Effect Transistor



### Product Summary

$V_{DS}$	30V
$I_D$	5.6A
$R_{DS(ON)}$ (at $V_{GS}=10V$ )	24mohm
$R_{DS(ON)}$ (at $V_{GS}=4.5V$ )	38mohm

### General Description

Trench Power LV MOSFET technology  
High density cell design for low  $R_{DS(ON)}$   
High Speed switching

Epoxy Meets UL 94 V-0 Flammability Rating  
Halogen Free

### Applications

Battery protection  
Load switch  
Power management

### Absolute Maximum Ratings ( $T_A=25$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		$V_{DS}$	30	V
Gate-source Voltage		$V_{GS}$	20	V
Drain Current	$T_A=25$	$I_D$	5.6	A
	$T_A=70$		4.5	
Pulsed Drain Current <sup>A</sup>		$I_{DM}$	30	A
Total Power Dissipation	$T_A=25$	$P_D$	1.2	W
	$T_A=70$		0.8	
Thermal Resistance Junction-to-Ambient <sup>B</sup>		$R_{JA}$	104	/W
Junction and Storage Temperature Range		$T_J, T_{STG}$	-55 +150	

### Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJL3404A	F2	R4	3000	30000	120000	7 reel



# YJL3404A

RECOMMEND  
YJL3404B  
FOR NEW DESIGN

## Electrical Characteristics ( $T_J=25$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250$	30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$			1	
Gate-Body Leakage Current	$I_{GSS1}$	$V_{GS}= -20V, V_{DS}=0V$			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250$	1	1.5	2.2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5.6A$		17	24	m
		$V_{GS}=4.5V, I_D=5A$		26	38	
Diode Forward Voltage	$V_{SD}$	$I_S=5.6A, V_{GS}=0V$			1.2	V
<b>Dynamic Parameters</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		526		pF
Output Capacitance	$C_{oss}$			78		
Reverse Transfer Capacitance	$C_{rss}$			69		
<b>Switching Parameters</b>						
Total Gate Charge	$Q_g$					

$V_{GS}=10$



Typical Performance Characteristics

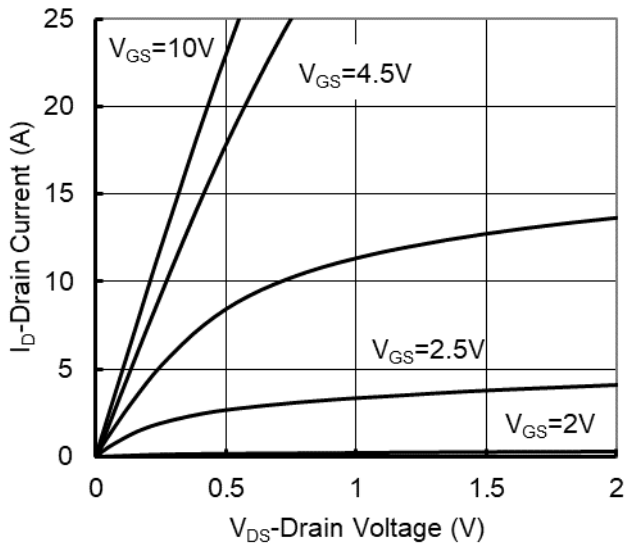


Figure1. Output Characteristics

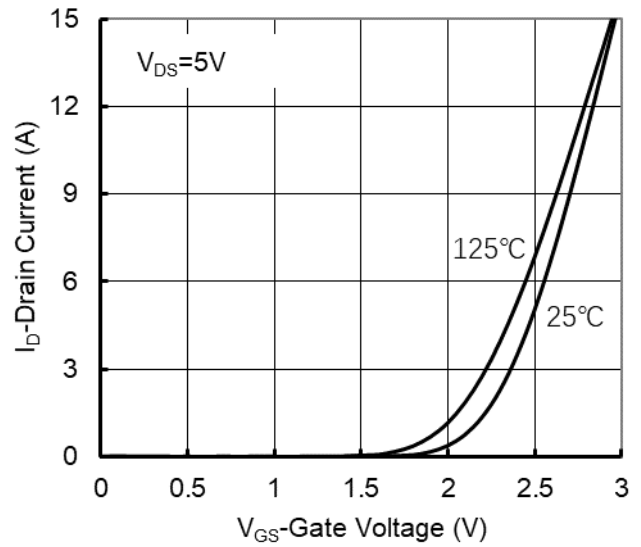


Figure2. Transfer Characteristics

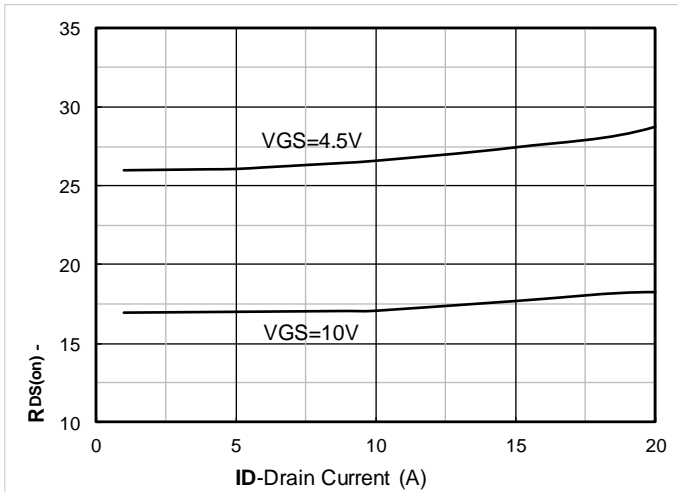


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

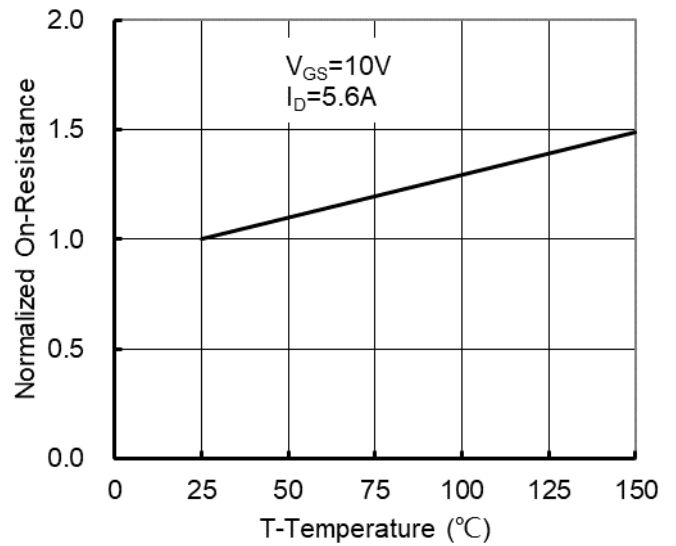
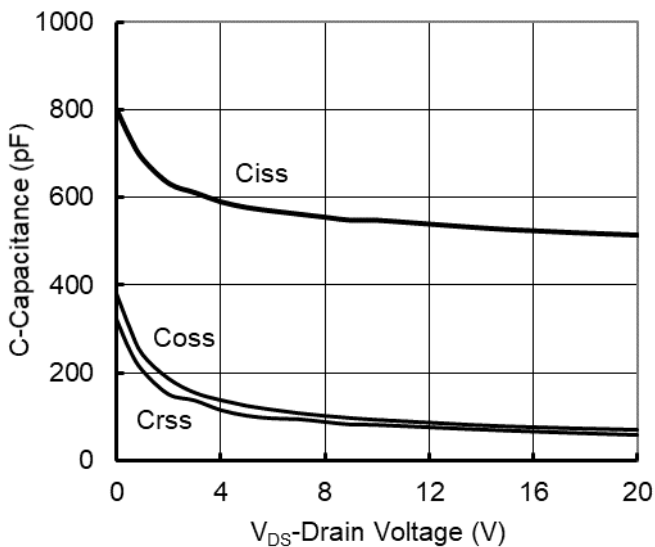


Figure 4: On-Resistance vs. Junction Temperature



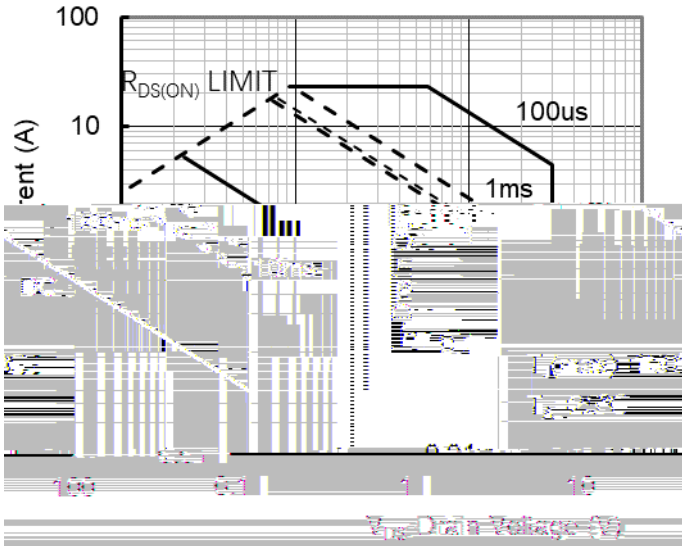


Figure7. Safe Operation Area

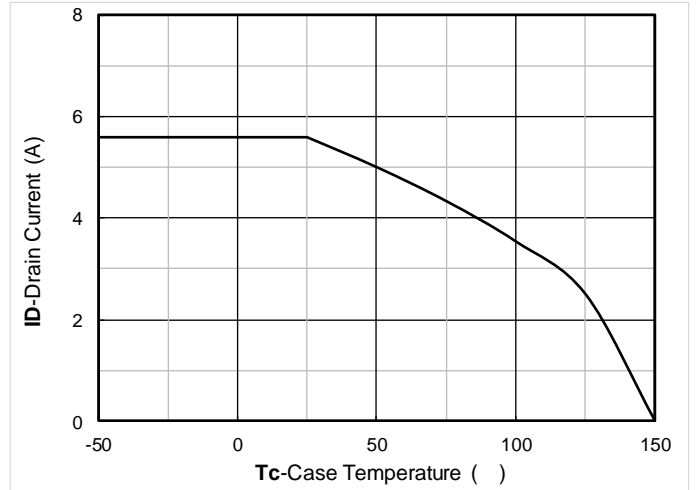


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

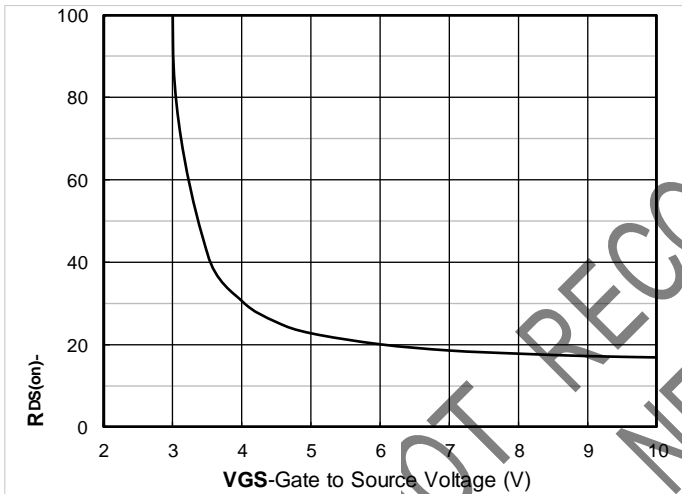


Figure 9. On-Resistance vs Gate to Source Voltage

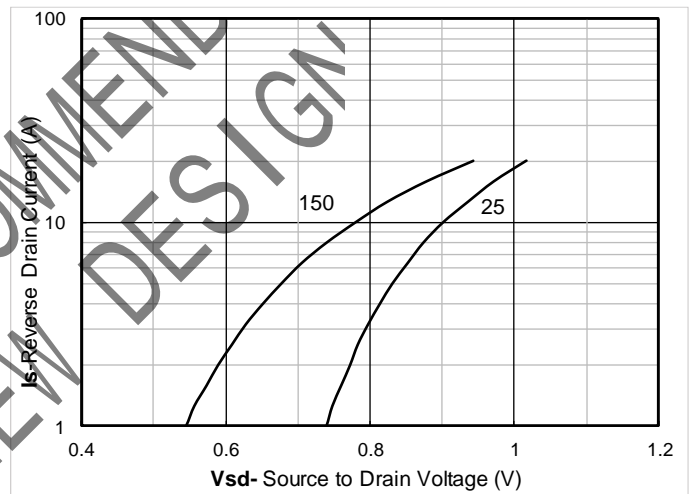


Figure 10. Forward characteristics of reverse diode

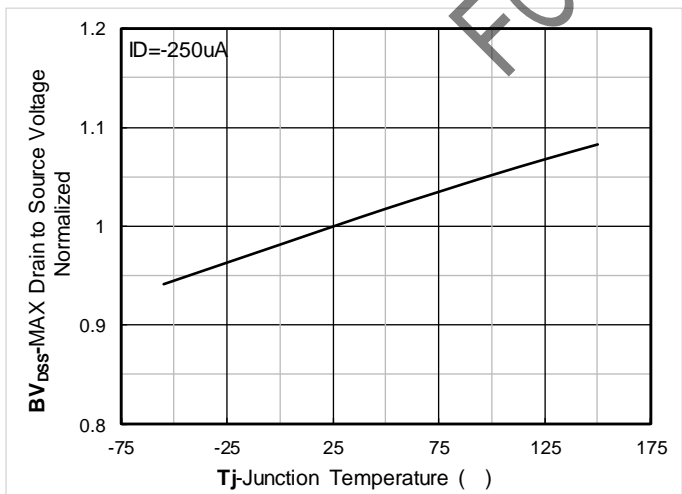


Figure 11. Normalized breakdown voltage

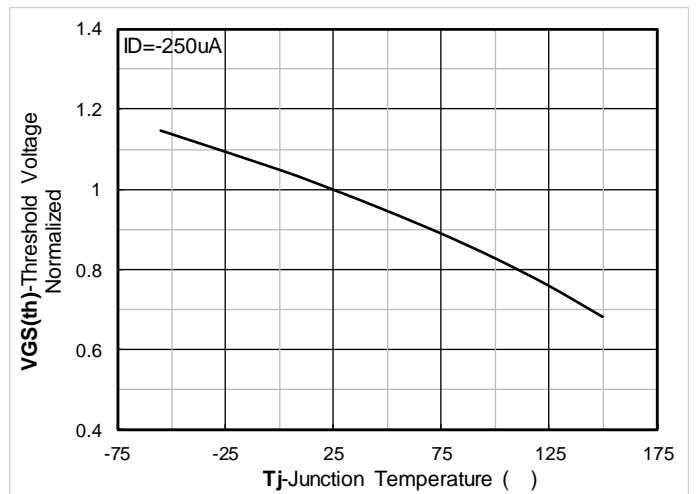


Figure 12. Normalized Threshold voltage

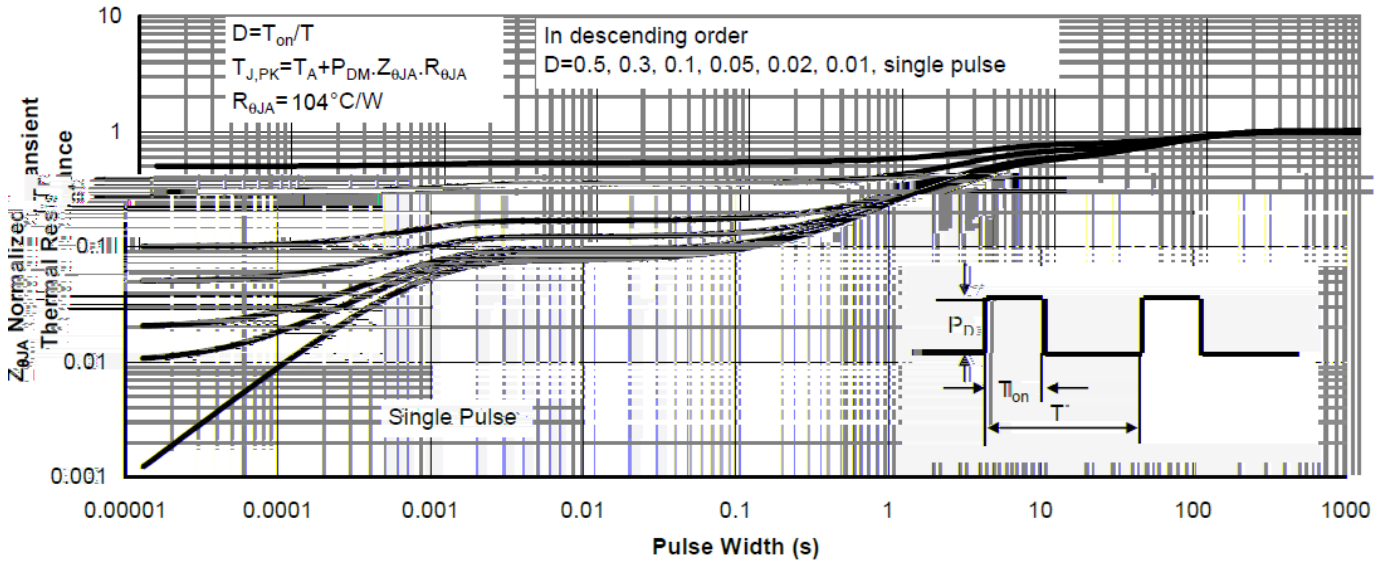
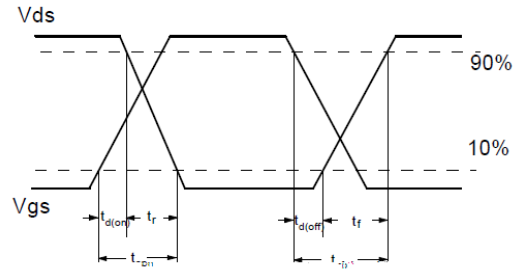
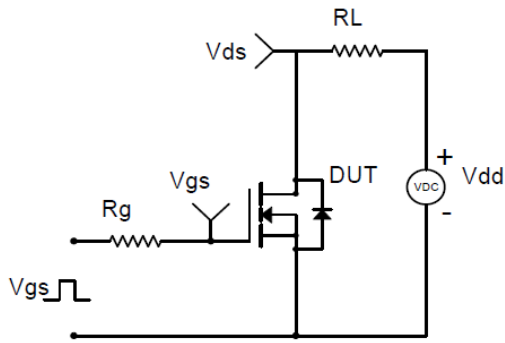
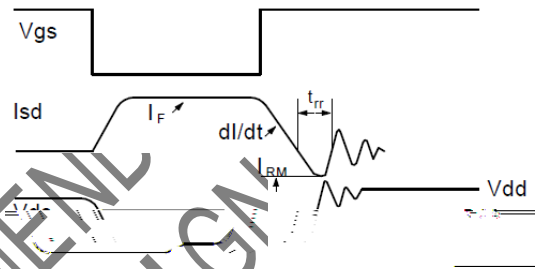
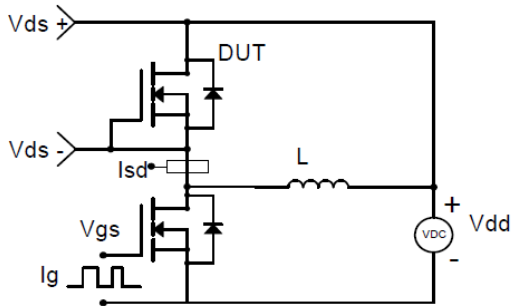


Figure13. Normalized Maximum Transient Thermal Impedance

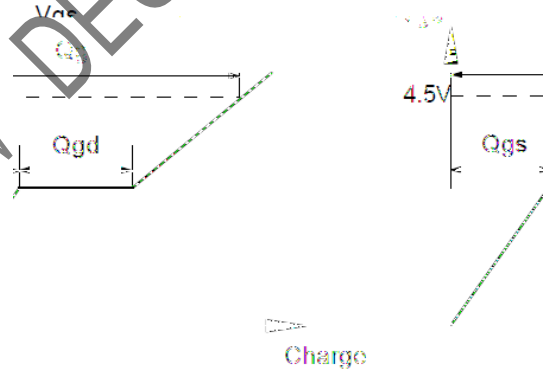
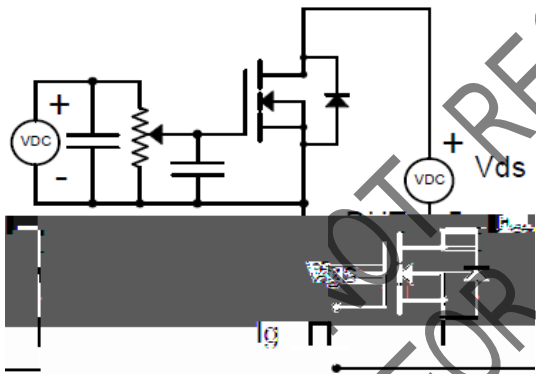
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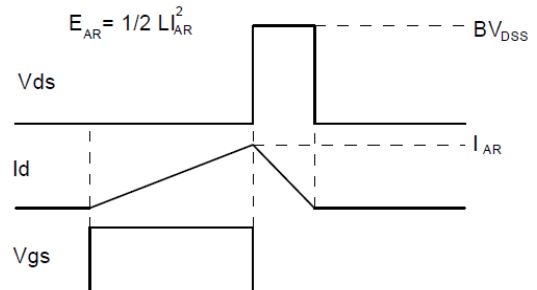
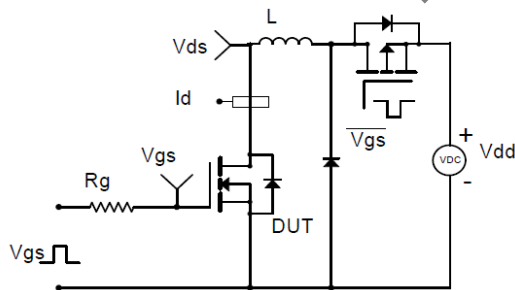
**Resistive Switching Test Circuit & Waveforms**



**Diode Recovery Test Circuit & Waveforms**



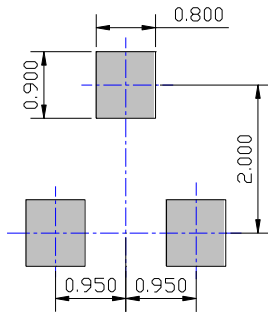
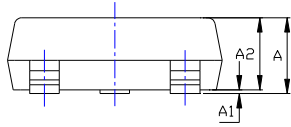
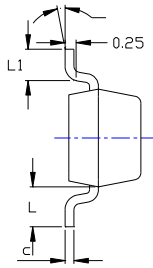
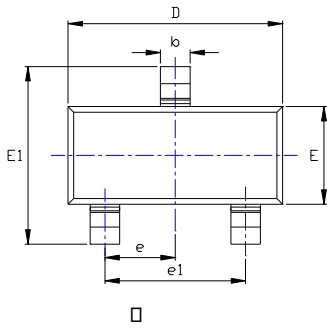
**Gate Charge Test Circuit & Waveform**



**Unclamped Inductive Switching (UIS) Test Circuit & Waveforms**



**SOT-23 Package information**



UNIT mm

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
	0°	8°	0°	8°

NOTE:  
 1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.  
 2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.  
 3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

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