

Dual N-Channel 20V Power MOSFET

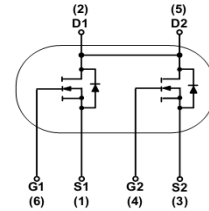
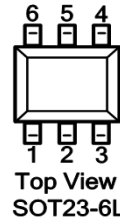
**$B_{VDSS}=20V$,
 $R_{DS(ON)}=24.5m\Omega$
 $ID=6A$**

Features:

- Super high dense cell design for low $R_{DS(ON)}$
- Rugged and reliable
- Surface Mount Package
-

Application

- DC-DC converters
- Power management in portable and Battery-powered products



Absolute Maximum Ratings ($T_A=25^\circ C$ Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current (1)	I_D	6	A
Pulsed Drain Current (1), (2)	I_{DM}	20	A
Power Dissipation (1)	PD	$T_A=25^\circ C$	0.83
		$T_A=100^\circ C$	0.3
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$

Thermal Characteristics

Symbol	Characteris	Typ	Max.	Units
$R_{\theta JA}^*$	Junction-to-Ambient	--	150	$^\circ C / W$

Notes :

- (1). Surface Mounted on 1 in² pad area, $t \leq 10$ sec
- (2). Pulse width $\leq 300 \mu s$, duty cycle $\leq 2 \%$

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

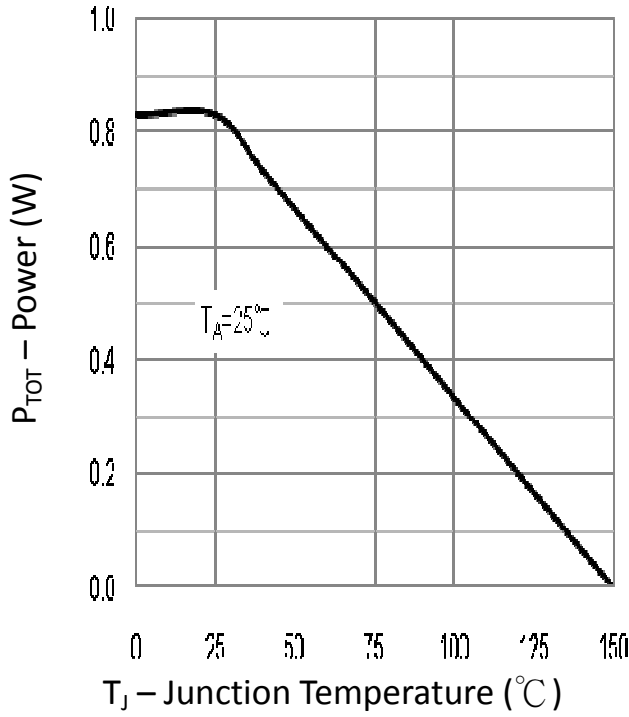
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	20	--	--	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.7	1	V
I_{GSS}	Gate-Body Leakage	$V_{GS}=\pm 10V$	--	--	± 0.1	μA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=16V, V_{GS}=0V$	--	--	1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance	$V_{GS}=4.5V, I_D=6A$	18	22	24.5	m Ω
$R_{DS(ON)}$	Drain-Source On-Resistance	$V_{GS}=2.5V, I_D=5A$	--	28	38	m Ω
DYNAMIC						
Q_g	Total Gate Charge	$V_{DS} = 10V, I_D = 6A,$ $V_{GS} = 4.5V$	--	9	--	nC
Q_{gs}	Gate-Source Charge		--	0.95	--	
Q_{gd}	Gate-Drain Charge		--	4	--	
C_{iss}	Input Capacitance	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1.0MHz$	--	490	--	PF
C_{oss}	Output Capacitance		--	81	--	
C_{rss}	Reverse Transfer Capacitance		--	67	--	
$t_{d(on)}$	Turn-On Delay Time	$V_{DS} = 10V, V_{GEN} = 4.5V$ $R_G = 6\Omega, R_L = 10\Omega,$ $I_{DS} = 1A$	--	2.6	--	ns
t_r	Turn-On Rise Time		--	27	--	
$t_{d(off)}$	Turn-Off Delay Time		--	25	--	
t_f	Turn-Off Fall Time		--	20	--	

Source-Drain Diode Ratings and Characteristics

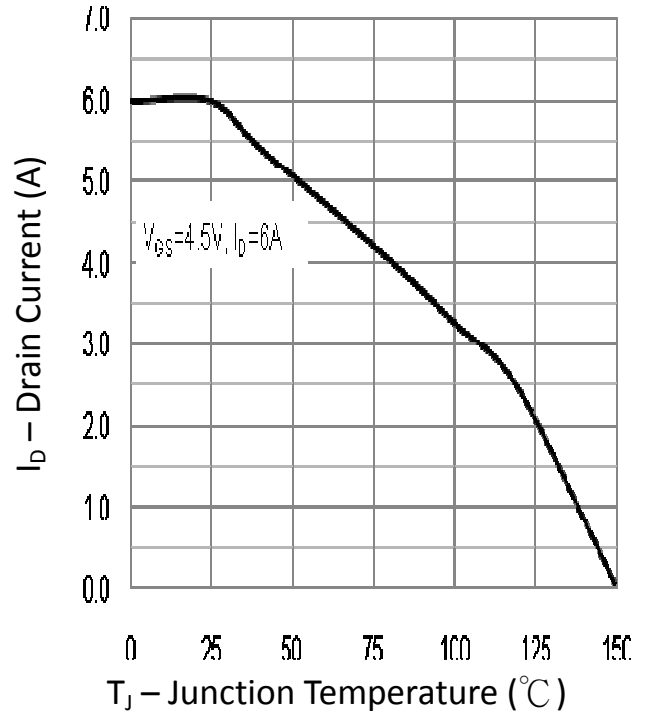
Symbol	Characteristic	Min.	Typ.	Max.	Unit	Test Condition
I_S	Continuous Source current	--	--	1	A	Integral reverse PN diode in The MOSFET
I_{SM}	Pulsed Source Current	--	--	4		
V_{SD}	Diode Forward voltage	--	0.7	1.3	V	$I_S=1A, V_{GS}=0V$

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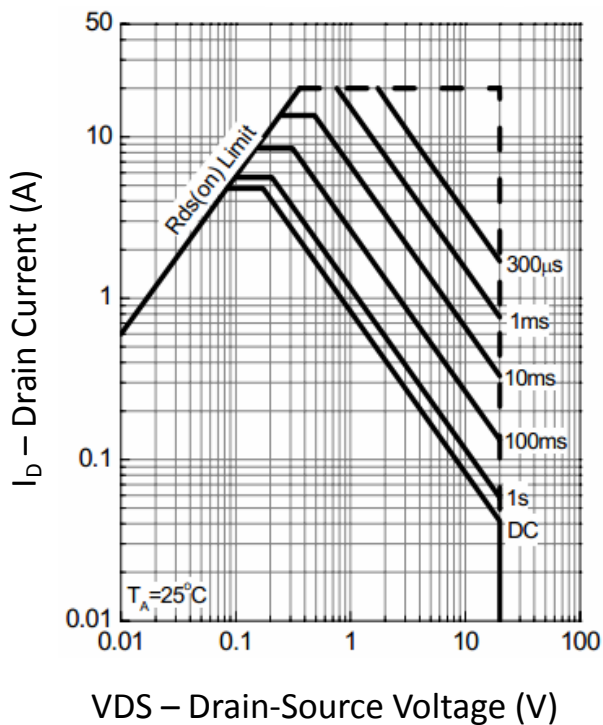
Power Dissipation



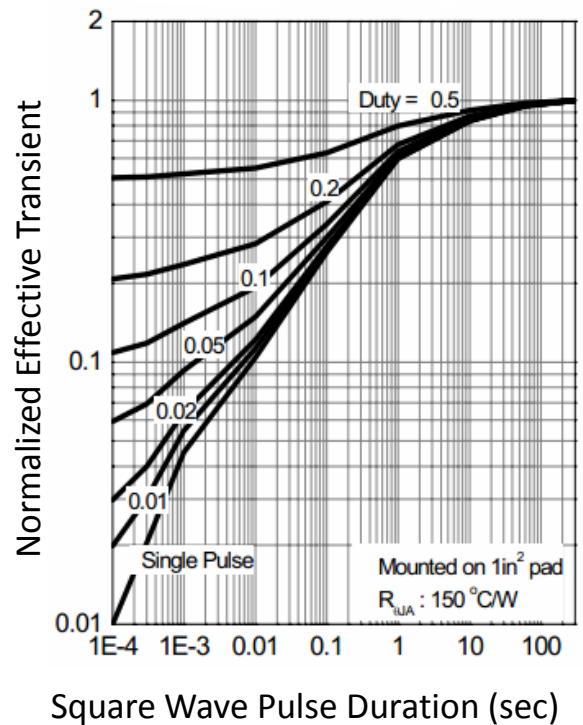
Drain Current



Safe Operation Area

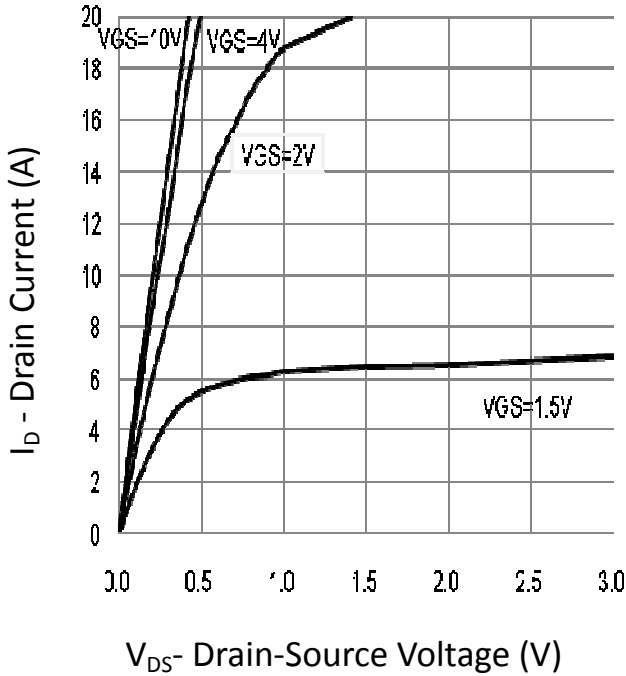


Thermal Transient Impedance

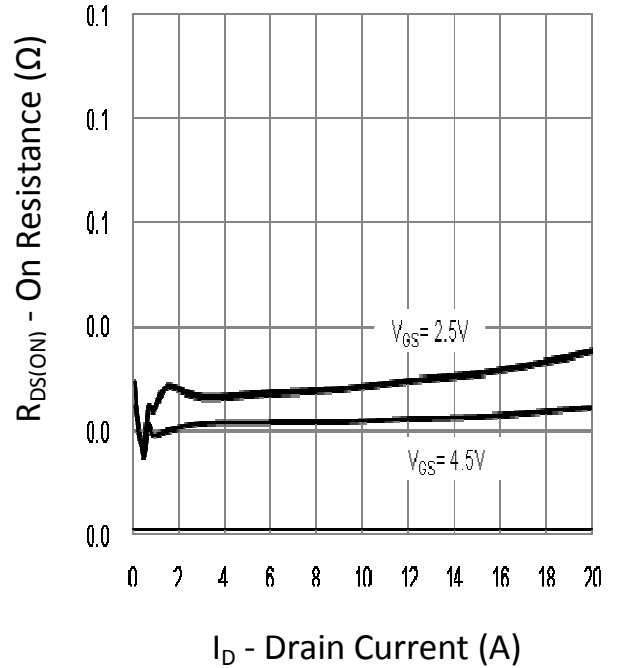


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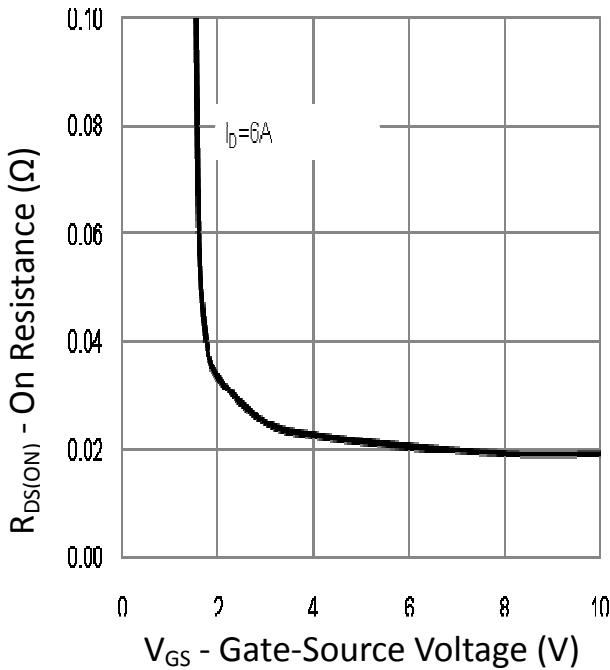
Output Characteristics



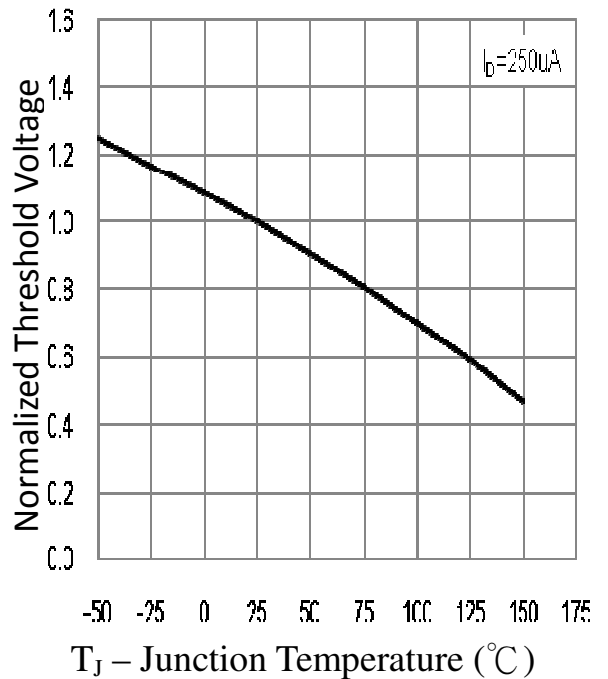
Drain-Source On Resistance



Transfer Characteristics

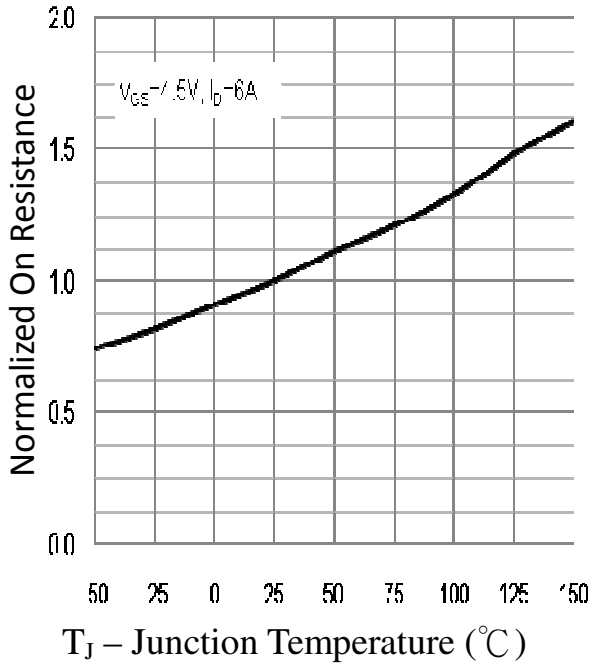


Gate Threshold Voltage

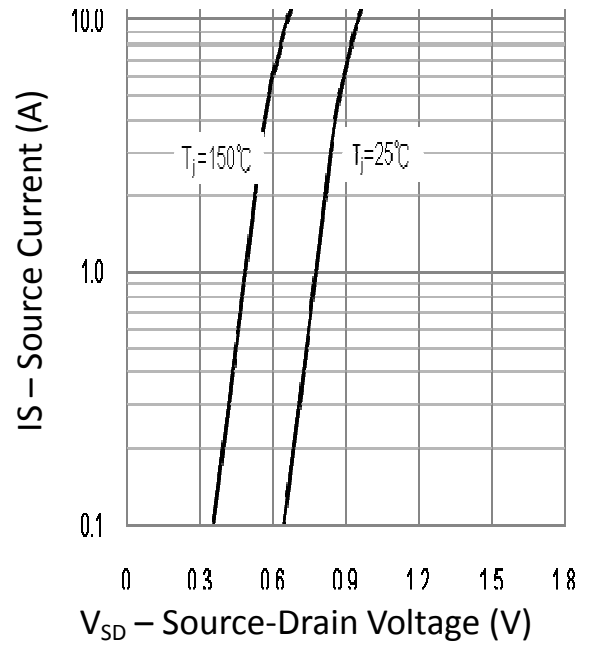


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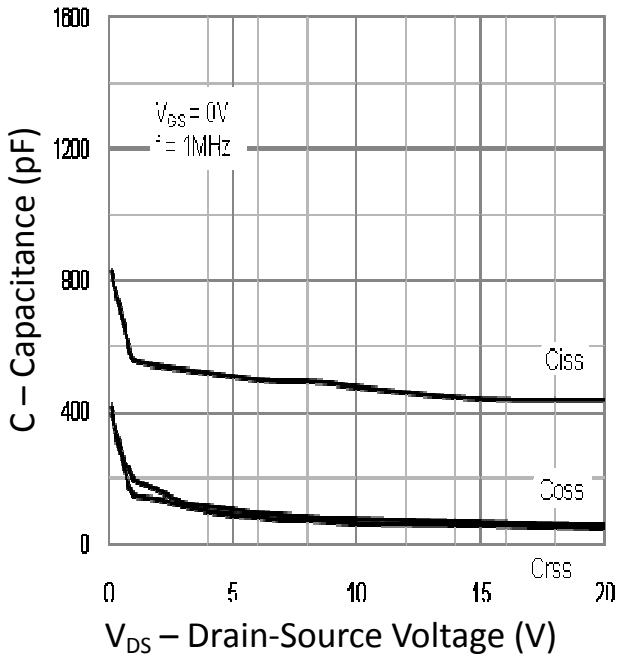
Drain-Source On Resistance



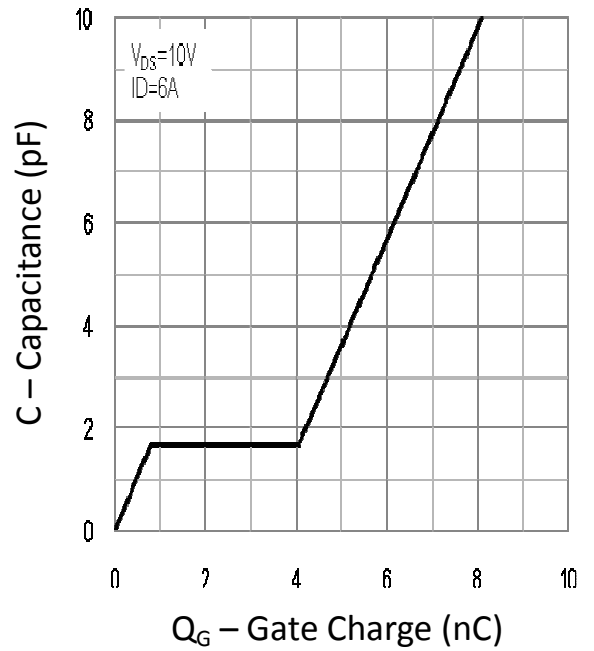
Source-Drain Diode Forward



Capacitance

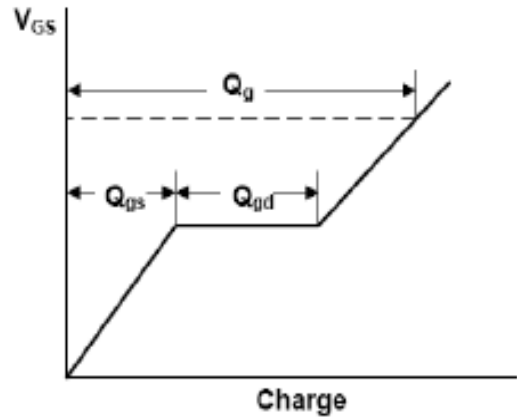
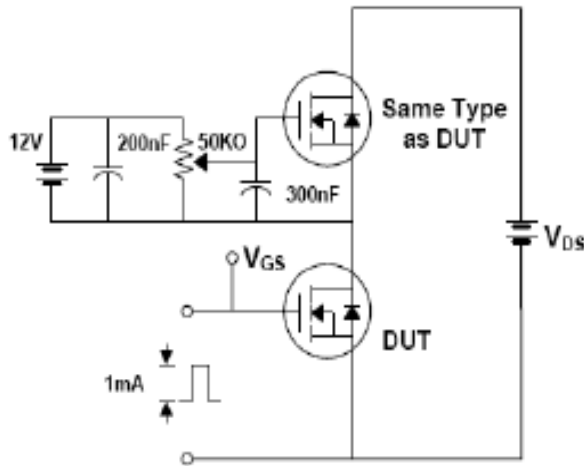


Gate Charge

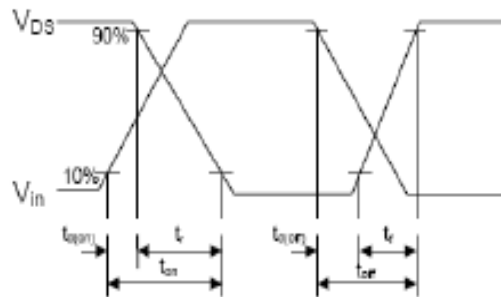
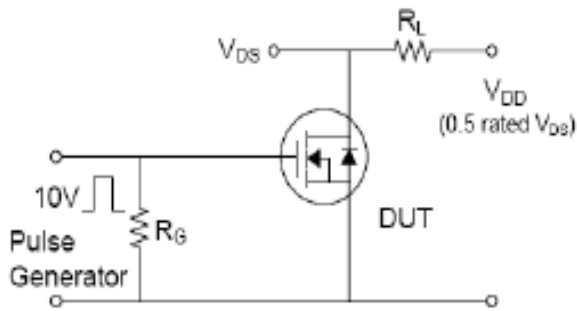


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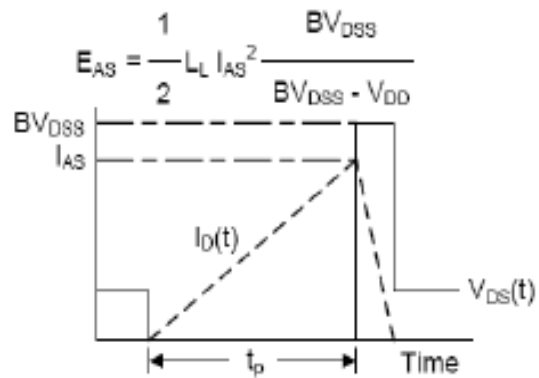
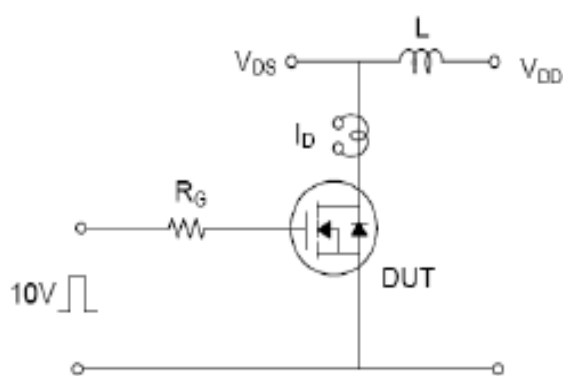
Test Circuit and Waveform



Switching Time Test Circuit & Waveforms

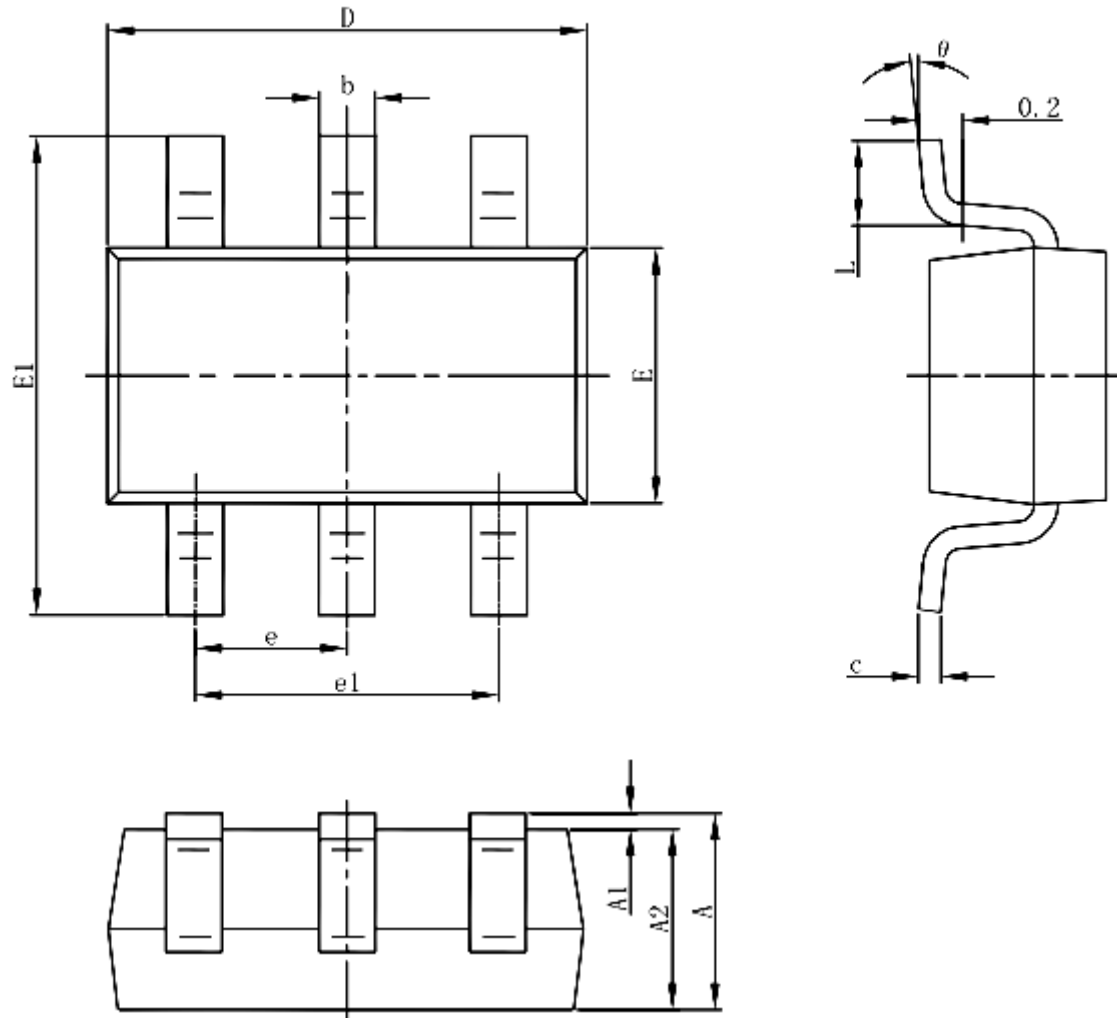


Unclamped Inductive Switching Test Circuit & Waveforms



Dual N-Channel 20V Power MOSFET
Package Dimension

SOT-23-6L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
theta	0°	8°	0°	8°

Dual N-Channel 20V Power MOSFET**Important Notice and Disclaimer**

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