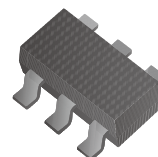


Dual N-Channel MOSFET

RoHS Device
Halogen Free



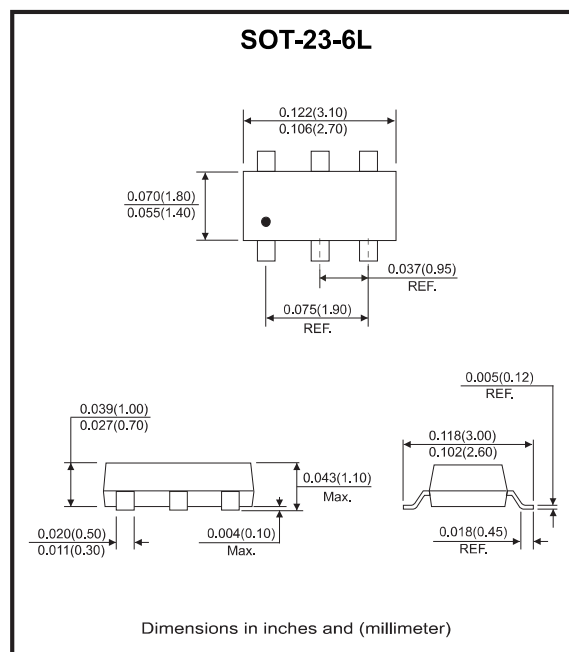
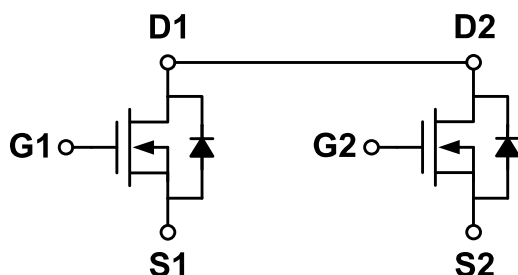
Features

- 20V,5A
- $R_{DS(ON)}=18m\Omega$ (Typ.) @ $V_{GS}=4.5V$
- $R_{DS(ON)}=23m\Omega$ (Typ.) @ $V_{GS}=2.5V$
- Low Gate Charge
- Low $R_{DS(on)}$

Application

- Battery Protection
- Switching Application

Circuit Diagram

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		± 12	V
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	5	A
		$T_C = 100^\circ\text{C}$	3.2	A
I_{DM}	Pulsed Drain Current ^{note1}		25	A
P_D	Power Dissipation	$T_A = 25^\circ\text{C}$	1.5	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		83.3	$^\circ\text{C/W}$
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	$^\circ\text{C}$

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V,I _D =250μA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} = 0V, T _J = 25℃	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V,V _{GS} = ±12V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =250μA	0.5	0.66	1.2	V
R _{DS(on)}	Static Drain-Source on-Resistance note2	V _{GS} =4.5V, I _D =4.5A	-	18	27	mΩ
		V _{GS} =2.5V, I _D =3.5A	-	23	35	mΩ
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =5A	3	-	-	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = 8V, V _{GS} = 0V, f = 1.0MHz	-	800	-	pF
C _{oss}	Output Capacitance		-	155	-	pF
C _{rss}	Reverse Transfer Capacitance		-	125	-	pF
Q _g	Total Gate Charge	V _{DS} =10V, I _D =4A, V _{GS} = 4.5V	-	11	-	nC
Q _{gs}	Gate-Source Charge		-	2.3	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	2.5	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{GS} =4V, V _{DD} =10V, I _D =1A, R _{REN} =10Ω	-	18	-	ns
t _r	Turn-on Rise Time		-	5	-	ns
t _{d(off)}	Turn-off Delay Time		-	43	-	ns
t _f	Turn-off Fall Time		-	20	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	5	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	25	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S =1.7A	-	0.77	1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Typical Performance Characteristics

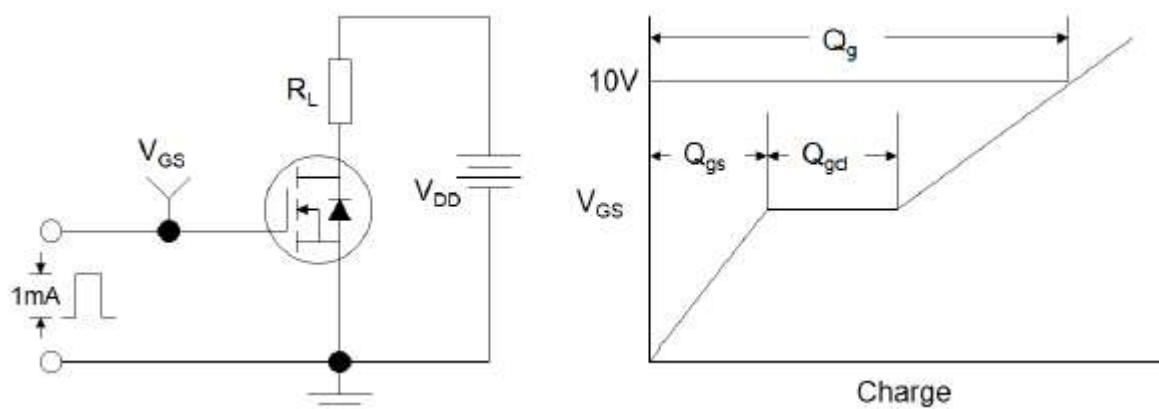


Figure1:Gate Charge Test Circuit & Waveform

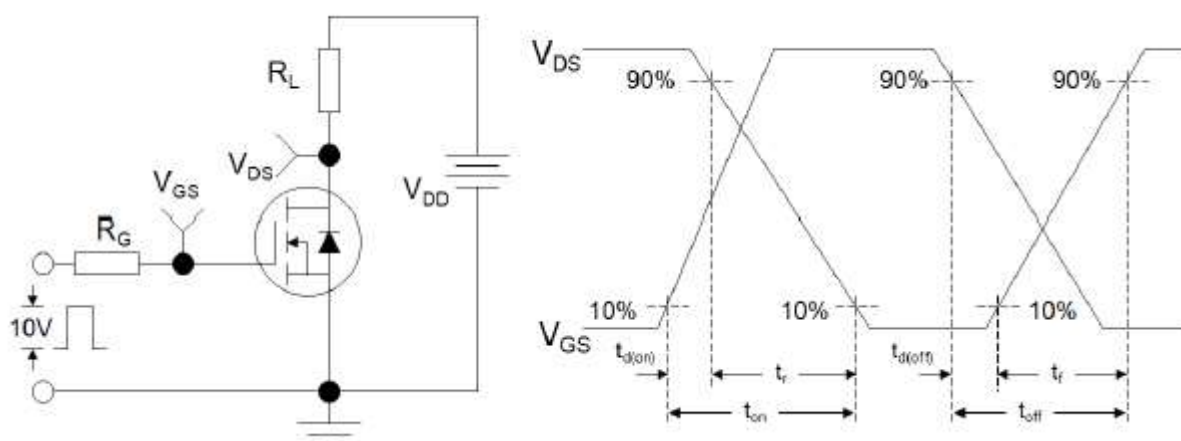


Figure 2: Resistive Switching Test Circuit & Waveforms

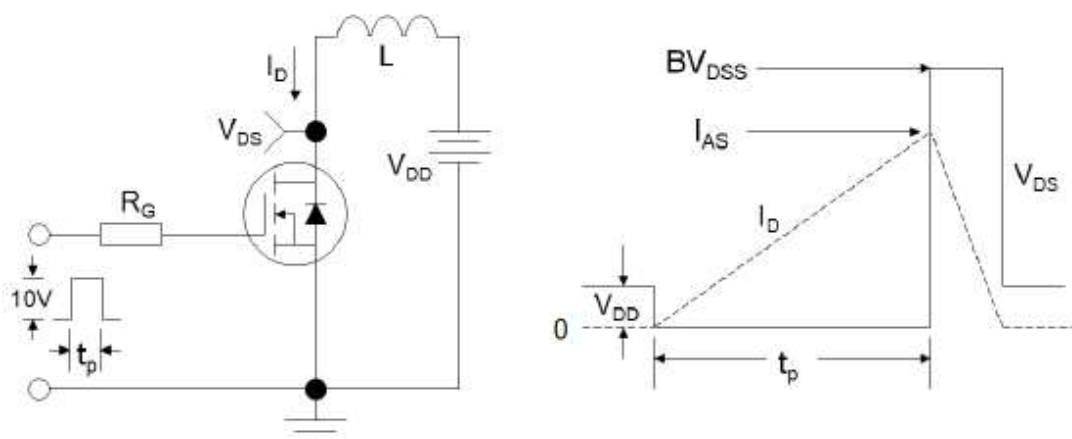


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

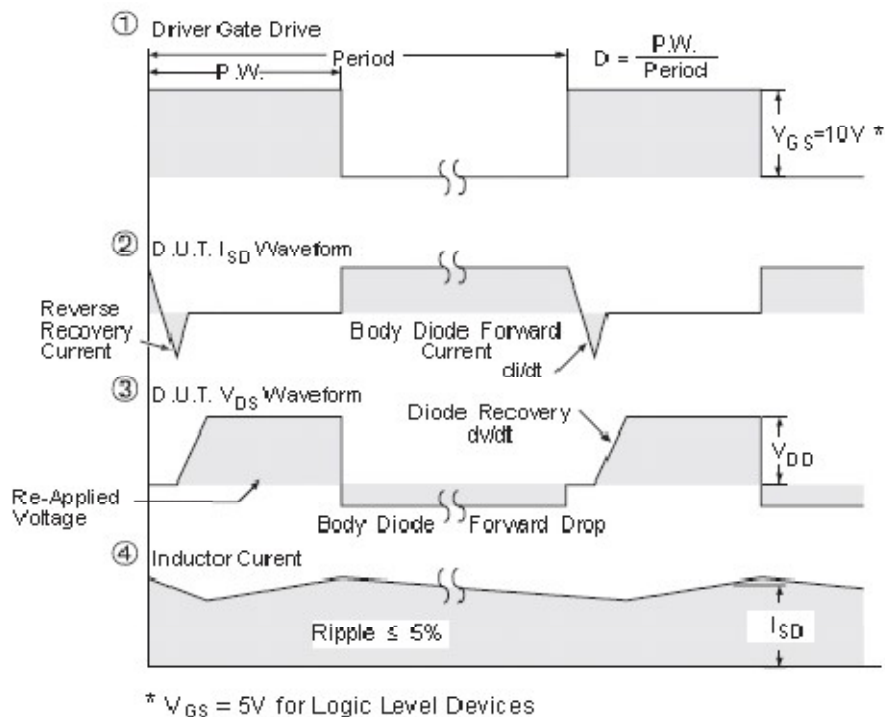
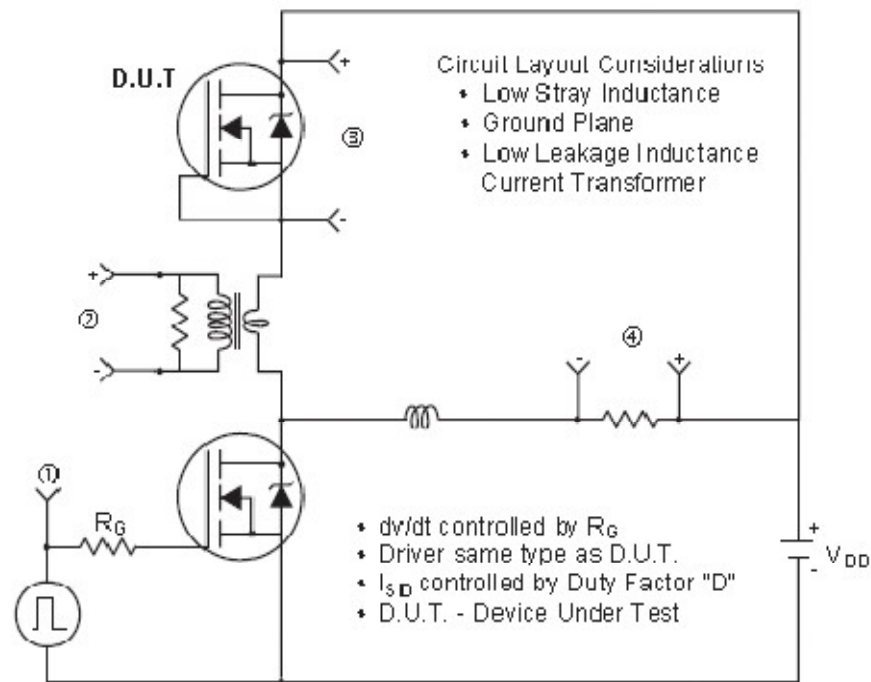
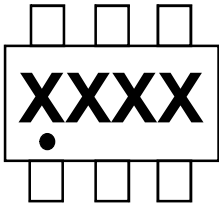


Figure 4: Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)

Marking Code

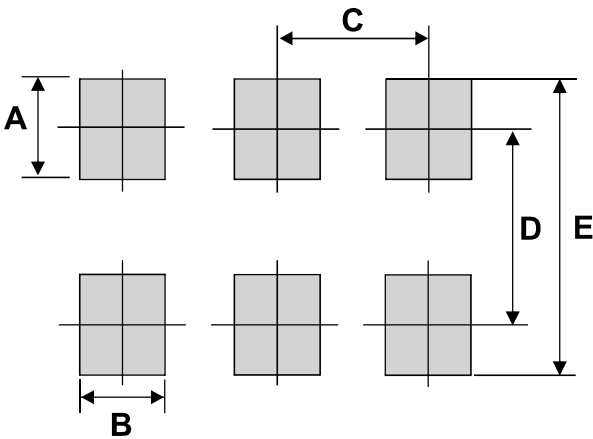
Part Number	Marking Code
LM8205A	8205



xxxx = Product type marking code

Suggested PAD Layout

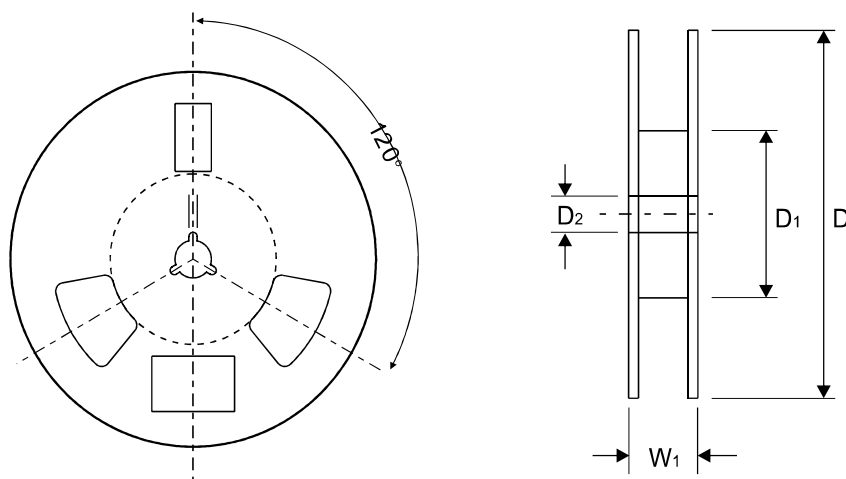
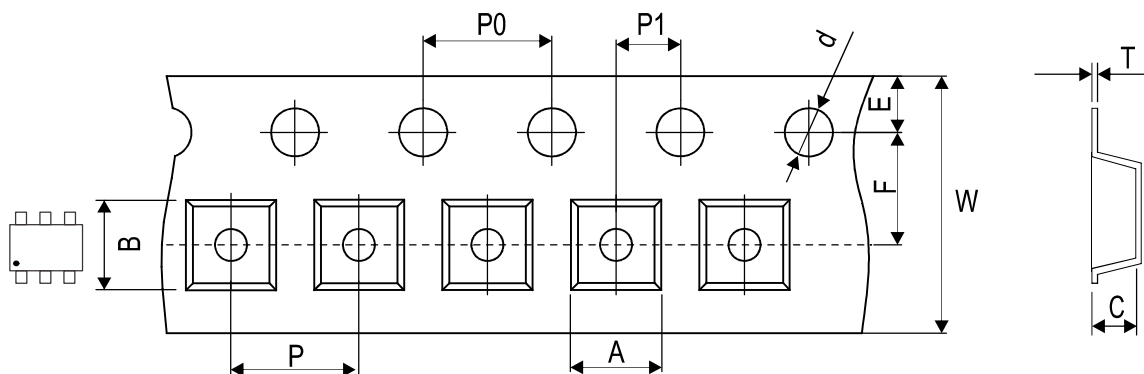
SIZE	SOT-23-6L	
	(mm)	(inch)
A	1.00 Min	0.039 Min
B	0.70 Min	0.028 Min
C	0.95 Min	0.037Min
D	2.40 Min	0.094Min
E	3.40 Min	0.134 Min



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23-6L	3,000	7

Reel Taping Specification



SOT-23-6L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.17 ± 0.10	3.10 ± 0.10	1.10 ± 0.10	$1.50 + 0.10 - 0.00$	$180.00 + 0.00 - 3.00$	60.00 ± 0.50	13.00 ± 0.20
	(inch)	0.125 ± 0.004	0.122 ± 0.004	0.043 ± 0.004	$0.059 + 0.001 - 0.00$	$7.087 + 0.00 - 0.118$	2.362 ± 0.020	0.512 ± 0.008

SOT-23-6L	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.25 ± 0.03	$8.00 + 0.30 - 0.10$	$12.30 + 1.00 - 0.30$
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.010 ± 0.001	$0.315 + 0.012 - 0.004$	$0.484 + 0.039 - 0.012$

Company reserves the right to improve product design , functions and reliability without notice.