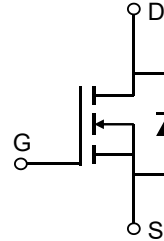


Description

Features

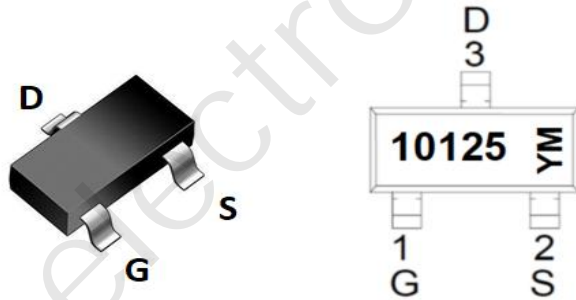
- 100V, 3A
 $R_{DS(ON)}$ Typ = 119mΩ @ $V_{GS} = 10V$
 $R_{DS(ON)}$ Typ = 127mΩ @ $V_{GS} = 4.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free



Schematic Diagram

Application

- Load Switch
- PWM Application
- Power Management



Marking and Pin Assignment

Package Marking and Ordering Information

Device	Marking	Package	Outline	Reel Size	Reel (pcs)	Per Carton (pcs)
CRMJTL10125A	10125	SOT-23-3L	TAPING	7"	3000	120000

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

Symbol	Parameter	Value	Units
V_{DS}	Drain-to-Source Voltage	100	V
V_{GS}	Gate-to-Source Voltage	±20	V
I_D	Continuous Drain Current	$T_A = 25^\circ\text{C}$	3
		$T_A = 100^\circ\text{C}$	1.8
I_{DM}	Pulsed Drain Current ⁽¹⁾	12	A
P_D	Power Dissipation	$T_A = 25^\circ\text{C}$	2.35
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ⁽²⁾	53	°C/W
T_J, T_{STG}	Junction & Storage Temperature Range	-55 to 150	°C

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
--------	-----------	------------	------	------	------	------

Off Characteristics

$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$I_D = 250\mu\text{A}, V_{GS} = 0\text{V}$	100	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 100\text{V}, V_{GS} = 0\text{V}$	-	-	1.0	μA
I_{GSS}	Gate-Body Leakage Current	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	-	-	± 100	nA

On Characteristics

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1.2	1.7	2.2	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance ⁽³⁾	$V_{GS} = 10\text{V}, I_D = 2\text{A}$	-	119	153	mΩ
		$V_{GS} = 4.5\text{V}, I_D = 1\text{A}$	-	127	165	mΩ

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{GS} = 0\text{V}, V_{DS} = 25\text{V},$ $f = 1\text{MHz}$	-	655	-	pF
C_{oss}	Output Capacitance		-	31	-	pF
C_{rss}	Reverse Transfer Capacitance		-	24	-	pF
Q_g	Total Gate Charge	$V_{GS} = 0 \text{ to } 10\text{V}$ $V_{DS} = 50\text{V}, I_D = 3\text{A}$	-	14.8	-	nC
Q_{gs}	Gate Source Charge		-	3	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	4.4	-	nC

Switching Characteristics

$t_{d(on)}$	Turn-On DelayTime	$V_{GS} = 10\text{V}, V_{DD} = 50\text{V}$ $I_D = 3\text{A}, R_{GEN} = 3\Omega$	-	12	-	ns
t_r	Turn-On Rise Time		-	7.6	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	36	-	ns
t_f	Turn-Off Fall Time		-	9.2	-	ns

Drain-Source Diode Characteristics and Max Ratings

I_S	Maximum Continuous Drain to Source Diode Forward Current	$V_{GS} = 0\text{V}, I_S = 2\text{A}$	-	-	3	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	12	A
V_{SD}	Drain to Source Diode Forward Voltage		-	-	1.2	V

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. $R_{\theta JA}$ is measured with the device mounted on a 1inch² pad of 2oz copper FR4 PCB
 3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$.

Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform



Figure 2: Resistive Switching Test Circuit & Waveform

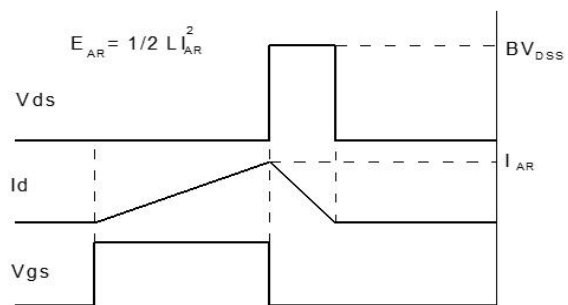
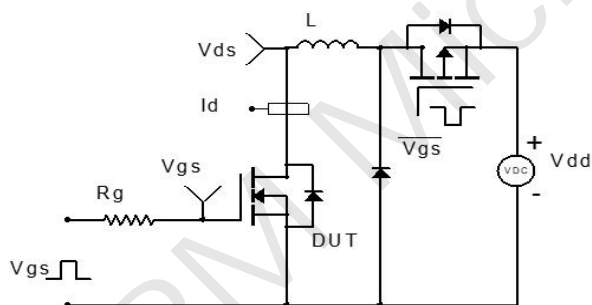
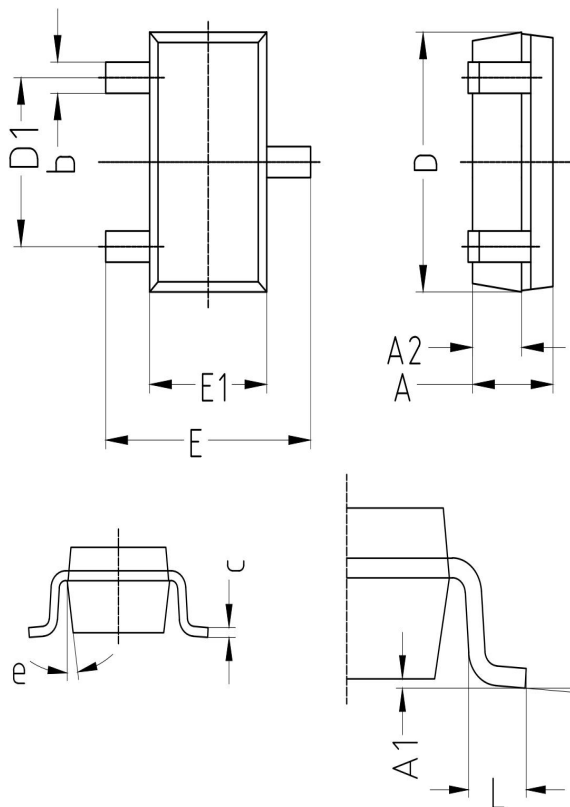


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform



Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(SOT-23-3L)




COMMON DIMENSION (MM)			
PKG	SOT-23-3L		
Symbol	MIN	MON	MAX
A	1.080	1.100	1.120
A1	0.010	0.060	0.150
A2	0.640	0.670	0.700
b	0.325	0.350	0.375
c	0.125	0.135	0.150
D	2.92	2.930	2.980
D1	1.875	1.900	1.925
E	2.650	2.800	2.950
E1	1.580	1.600	1.670
L	0.300	0.450	0.600
e	8°		
Q	0°	4°	8°

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Contact information

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