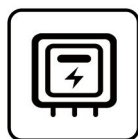


TDSiEMIC

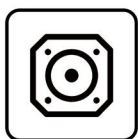
拓 電 半 導 體

自主封測 品質把控 售後保障

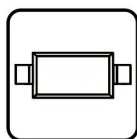
WEB | WWW.TDSEMIC.COM



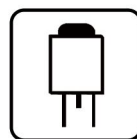
電源管理



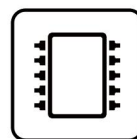
顯示驅動



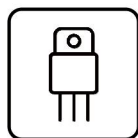
二三極管



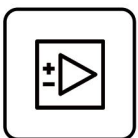
LDO穩壓器



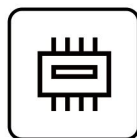
觸摸芯片



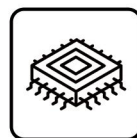
MOS管



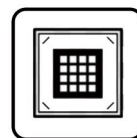
運算放大器



存儲芯片



MCU



串口通信

3400A-TD

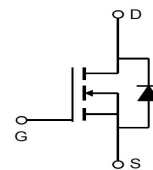
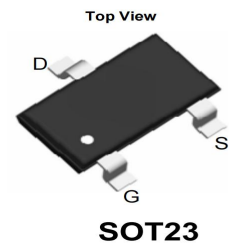
產品規格說明書

Features

- 30V, 5A
- $R_{DS(ON)}$ Typ= 33m Ω @ V_{GS} = 4.5V
- $R_{DS(ON)}$ Typ= 36m Ω @ V_{GS} = 2.5V
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free

Applications

- Load Switch
- PWM Application
- Power Management



Absolute Maximum Ratings (@ T_J = 25°C unless otherwise specified)

Symbol	Parameter	Value	Units
V_{DS}	Drain-to-Source Voltage	30	V
V_{GS}	Gate-to-Source Voltage	± 12	V
I_D	Continuous Drain Current	$T_A = 25^{\circ}C$	A
		$T_A = 100^{\circ}C$	
I_{DM}	Pulsed Drain Current ⁽¹⁾	16	A
P_D	Power Dissipation	$T_A = 25^{\circ}C$	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ⁽²⁾	103	$^{\circ}C/W$
T_J, T_{STG}	Junction & Storage Temperature Range	-55 to 150	$^{\circ}C$

Electrical Characteristics (T_J = 25°C unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	I _D = 250μA, V _{GS} = 0V	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} = 0V	-	-	1.0	μA
I _{GSS}	Gate-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	0.4	0.75	1.4	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽³⁾	V _{GS} =4.5V, I _D =3A	-	33	46	mΩ
		V _{GS} = 2.5V, I _D =3A	-	36	51	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz	-	528	-	pF
C _{oss}	Output Capacitance		-	37	-	pF
C _{rss}	Reverse Transfer Capacitance		-	29	-	pF
Q _g	Total Gate Charge	V _{GS} = 0 to 4.5V V _{DS} = 15V, I _D =2A	-	4.5	-	nC
Q _{gs}	Gate Source Charge		-	1	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	1	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On DelayTime	V _{GS} = 4.5V, V _{DD} =15V I _D =2A, R _{GEN} = 3Ω	-	4	-	ns
t _r	Turn-On Rise Time		-	13	-	ns
t _{d(off)}	Turn-Off DelayTime		-	41	-	ns
t _f	Turn-Off Fall Time		-	17	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	5	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	16	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S = 4A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I _F = 2A, di/dt = 100A/us	-	6	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	1	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. R_{θJA} is measured with the device mounted on a 1inch² pad of 2oz copper FR4 PCB
 3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

Test Circuit

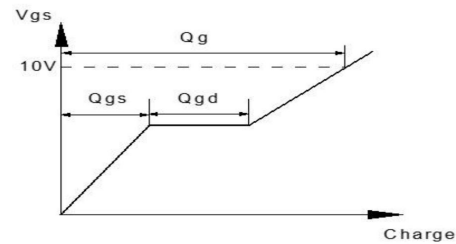
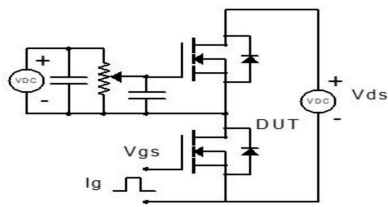


Figure 1: Gate Charge Test Circuit & Waveform

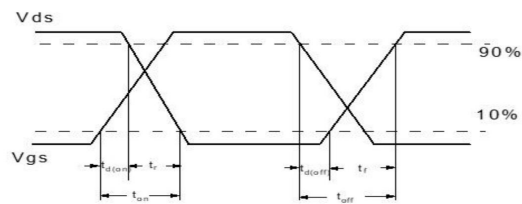
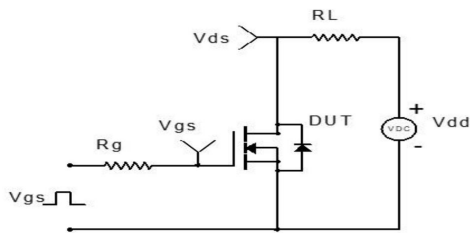


Figure 2: Resistive Switching Test Circuit & Waveform

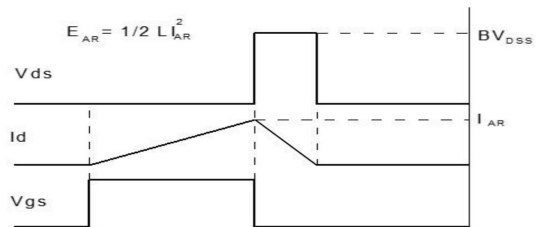
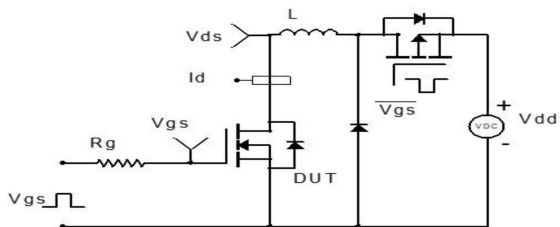


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

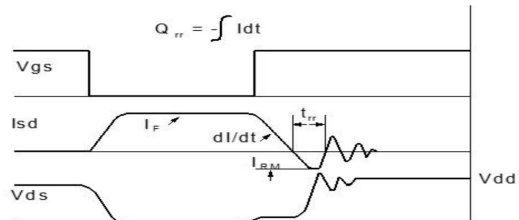
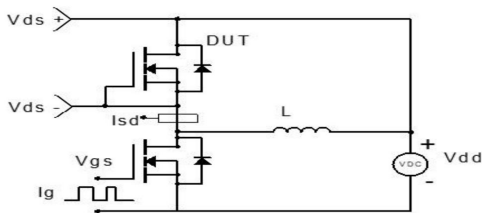
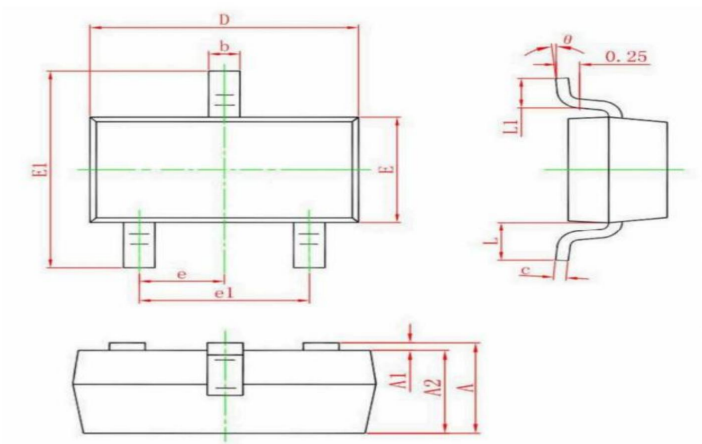


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°