

## General Description

The MY3410 is the high cell density trenched N-CH MOSFET, which provides excellent  $R_{DS(ON)}$  and efficiency for most of the small power switching and load switch applications.

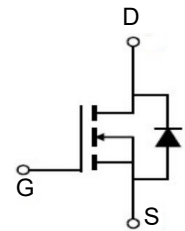
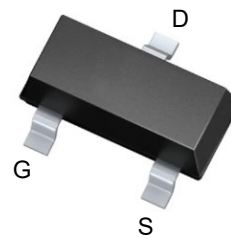


## Features

$V_{DSS}$	30	V
$I_D$	7	A
$R_{DS(ON)}$ (at $V_{GS}=10V$ )	12	m $\Omega$
$R_{DS(ON)}$ (at $V_{GS}=4.5V$ )	17	m $\Omega$

## Application

- Green Device Available
- Super Low Gate Charge
- Excellent Cdv/dt effect decline



## Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY3410	SOT-23	MY3410	3000

## Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Max.	Units	
$V_{DSS}$	Drain-Source Voltage	30	V	
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	V	
$I_D$	Continuous Drain Current	$T_A = 25^\circ\text{C}$	7	A
		$T_A = 100^\circ\text{C}$	5.5	A
$I_{DM}$	Pulsed Drain Current <sup>note1</sup>	29.4	A	
$P_D$	Power Dissipation	2	W	
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	85	$^\circ\text{C/W}$	
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$	

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

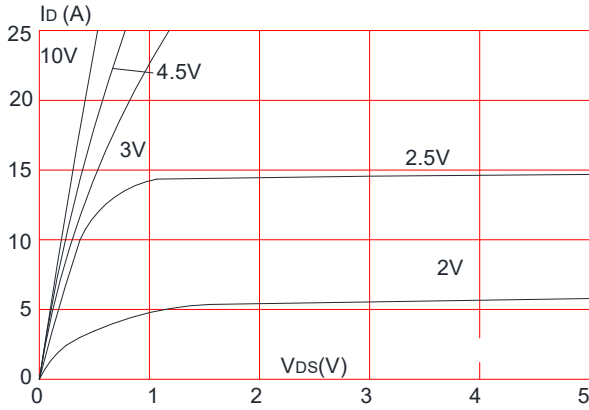
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V,$	-	-	1.0	$\mu A$
$I_{GSS}$	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note3</small>	$V_{GS}=10V, I_D=10A$	-	12	17	m $\Omega$
		$V_{GS}=4.5V, I_D=5A$	-	17	25	
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=15V, V_{GS}=0V,$ $f=1.0MHz$	-	614	-	pF
$C_{oss}$	Output Capacitance		-	118	-	pF
$C_{rss}$	Reverse Transfer Capacitance		-	98	-	pF
$Q_g$	Total Gate Charge	$V_{DS}=15V,$ $I_D=11A, V_{GS}=10V$	-	16	-	nC
$Q_{gs}$	Gate-Source Charge		-	2.7	-	nC
$Q_{gd}$	Gate-Drain("Miller") Charge		-	4.5	-	nC
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=15V,$ $R_L=1.35\Omega,$ $R_{GEN}=3\Omega,$ $V_{GS}=10V$	-	6	-	ns
$t_r$	Turn-on Rise Time		-	10	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	30	-	ns
$t_f$	Turn-off Fall Time		-	6.5	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
$I_S$	Maximum Continuous Drain to Source Diode Forward Current		-	-	7	A
$I_{SM}$	Maximum Pulsed Drain to Source Diode Forward Current		-	-	30	A
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=15A$	-	-	1.2	V
$t_{rr}$	Body Diode Reverse Recovery Time	$T_J=25\text{ }^\circ\text{C},$ $I_F=11A, di/dt=100A/\mu s$	-	7	-	ns
$Q_{rr}$	Body Diode Reverse Recovery Charge		-	10	-	nC

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

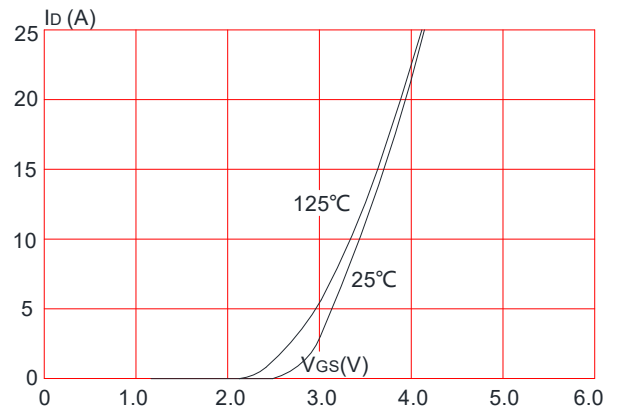
2. Pulse Test: Pulse Width $\leq 300\mu s$ , Duty Cycle $\leq 0.5\%$

**Typical Electrical and Thermal Characteristics**

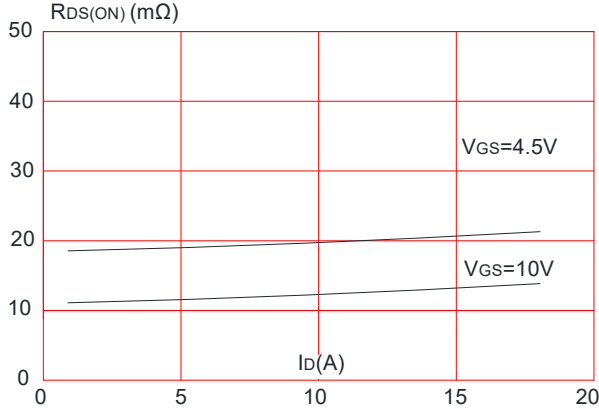
**Figure 1: Output Characteristics**



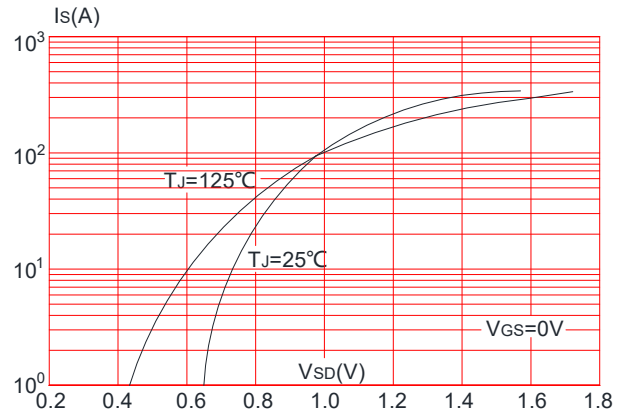
**Figure 2: Typical Transfer Characteristics**



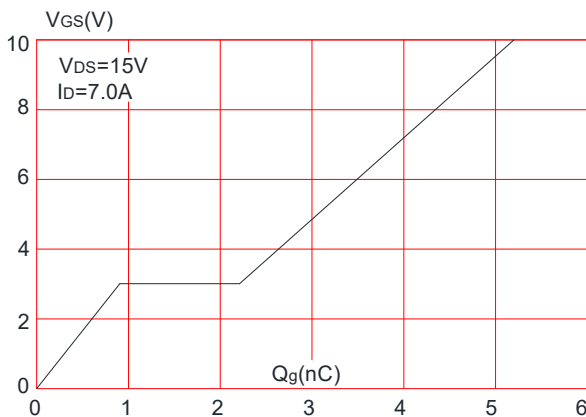
**Figure 3: On-resistance vs. Drain Current**



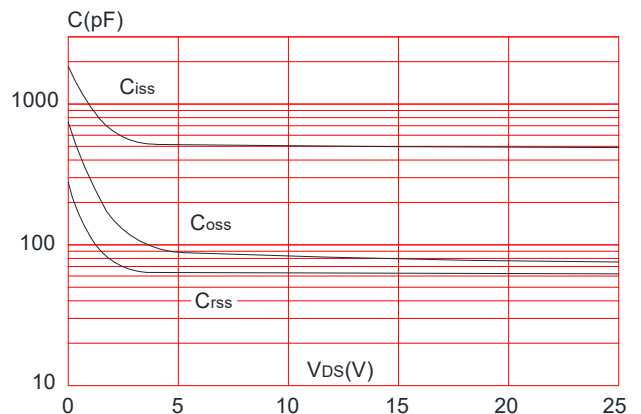
**Figure 4: Body Diode Characteristics**



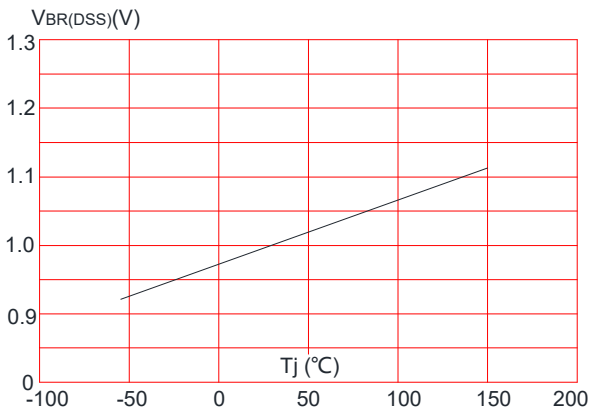
**Figure 5: Gate Charge Characteristics**



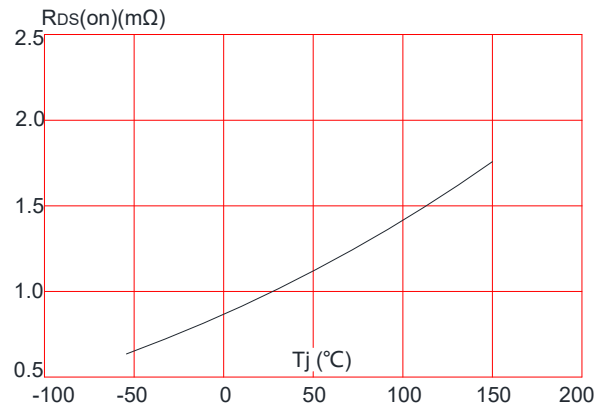
**Figure 6: Capacitance Characteristics**



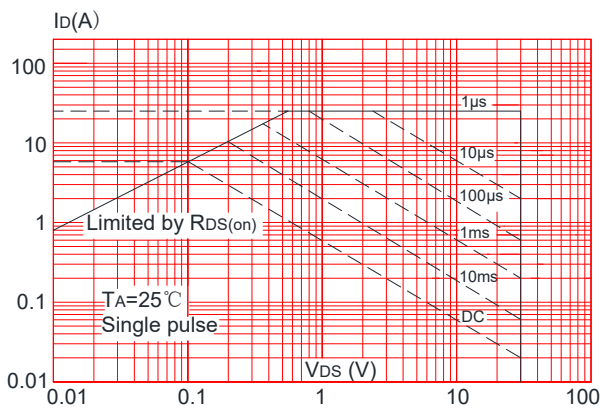
**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature



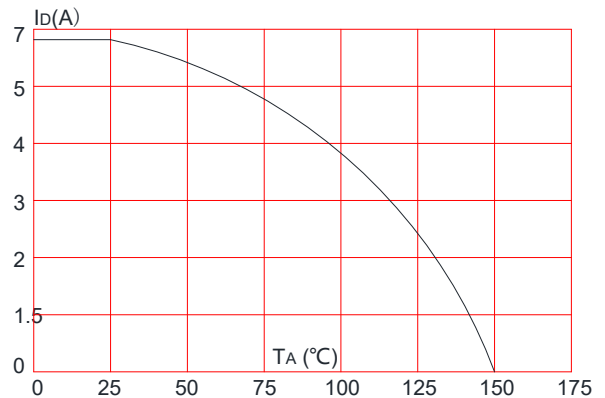
**Figure 8:** Normalized on Resistance vs. Junction Temperature



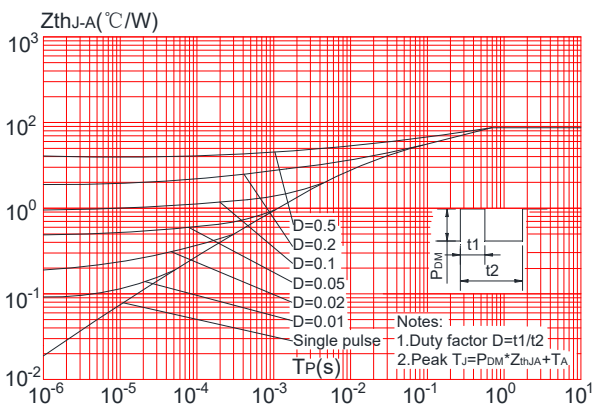
**Figure 9:** Maximum Safe Operating Area



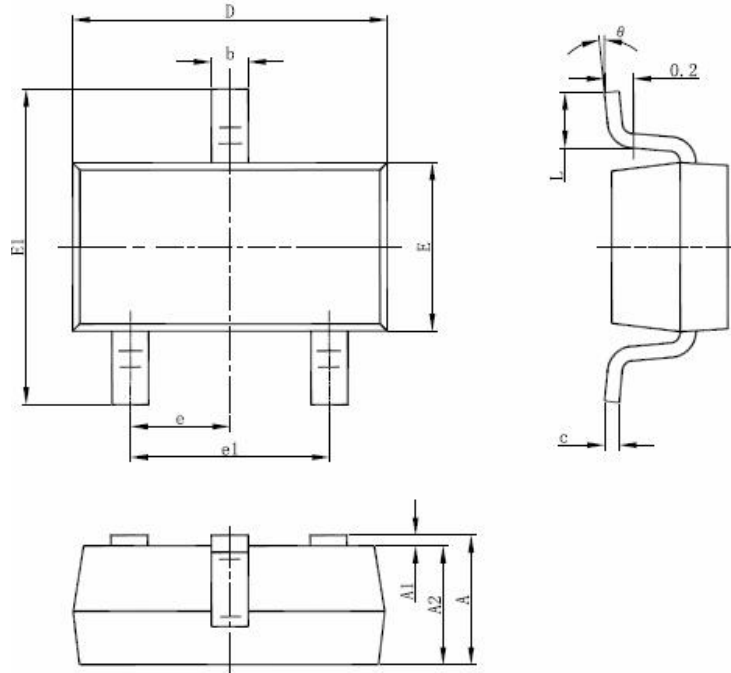
**Figure 10:** Maximum Continuous Drain Current vs. Ambient Temperature



**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



**Package Mechanical Data-SOT-23**



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
θ	0°	8°	0°	8°