

## General Description

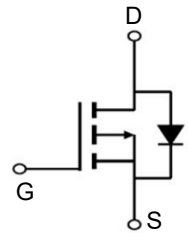
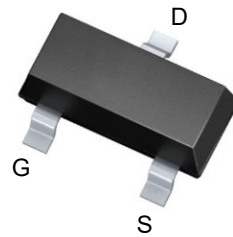
The MY3415 is the P-Channel logic enhancement mode power field effect transistor is produced using high cell density advanced trench technology.. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, and low in-line power loss are needed in a very small outline surface mount package.

## Features

$V_{DSS}$	-20	V
$I_D$	-5.6	A
$R_{DS(ON)}$ (at $V_{GS} = -4.5V$ )	34	$m\Omega$
$R_{DS(ON)}$ (at $V_{GS} = -2.5V$ )	44	$m\Omega$

## Application

- Power Management
- Portable Equipment
- DC/DC Converter



## Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY3415	SOT23-3L	3415	3000

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

Symbol	Parameter	Typical	Unit
$V_{DSS}$	Drain-Source Voltage	-20	V
$V_{GSS}$	Gate-Source Voltage	$\pm 8$	V
$I_D$	Continuous Drain Current ( $T_C=25^{\circ}C$ )	-5.6	A
	Continuous Drain Current ( $T_C=70^{\circ}C$ )	-3.5	A
$I_{DM}$	Pulsed Drain Current	-20	A
$P_D$	Power Dissipation	$T_A=25^{\circ}C$	1.5
		$T_A=70^{\circ}C$	0.9
$T_J$	Operation Junction Temperature	15 0	$^{\circ}C$
$T_{STG}$	Storage Temperature Range	-55~+150	$^{\circ}C$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	120	$^{\circ}C/W$

**Electrical Characteristics (T<sub>J</sub>=25 °C, unless otherwise noted)**

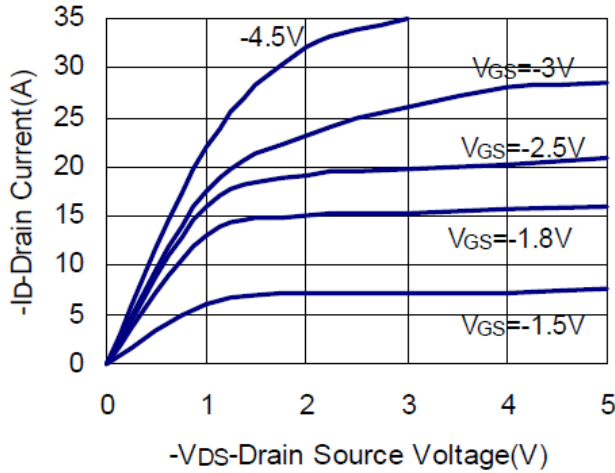
Symbol	Parameter	Condition	Min	Typ	Max	Unit
<b>Static Parameters</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-20			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-0.3		-1.0	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±8V			±10	uA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-12V, V <sub>GS</sub> =0			-1	uA
		V <sub>DS</sub> =-12V, V <sub>GS</sub> =0 T <sub>J</sub> =55°C			-5	
R <sub>DS(ON)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-4.3A		34	44	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-3.0A		44	52	
		V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-2.0A		56	75	
		V <sub>GS</sub> =-1.5V, I <sub>D</sub> =-1.0A		85	110	
G <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =-5V, I <sub>D</sub> =-4.0A		22		S
<b>Source-Drain Diode</b>						
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =-1.0A, V <sub>GS</sub> =0V		-0.67	-1.2	V
<b>Dynamic Parameters</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-10V V <sub>GS</sub> =-4.5V I <sub>D</sub> =-4.0A		11.1		nC
Q <sub>gs</sub>	Gate-Source Charge			3.1		
Q <sub>gd</sub>	Gate-Drain Charge			2.4		
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =-10V V <sub>GS</sub> =0V f=1MHz		989		pF
C <sub>oss</sub>	Output Capacitance			167		
C <sub>rss</sub>	Reverse Transfer Capacitance			75.5		
T <sub>d(on)</sub>	Turn-On Time	V <sub>DS</sub> =-10V I <sub>D</sub> =-3.7A		712		nS
T <sub>r</sub>				1386		
T <sub>d(off)</sub>	Turn-Off Time	V <sub>GEN</sub> =-4.5V R <sub>G</sub> =1Ω		9.1		
T <sub>f</sub>				4		

Note: 1. Pulse test: pulse width≤300uS, duty cycle≤2%

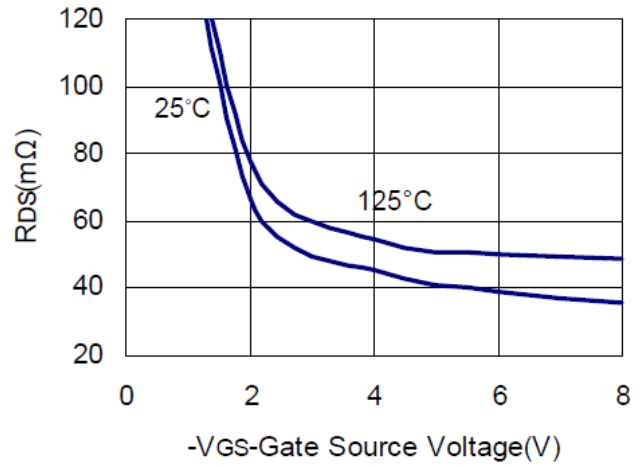
2.Static parameters are based on package level with recommended wire bonding

**Switching Time Test Circuit and Waveforms**

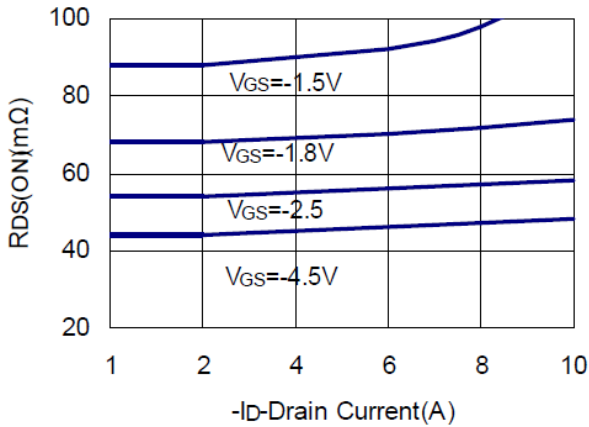
**Output Characteristics**



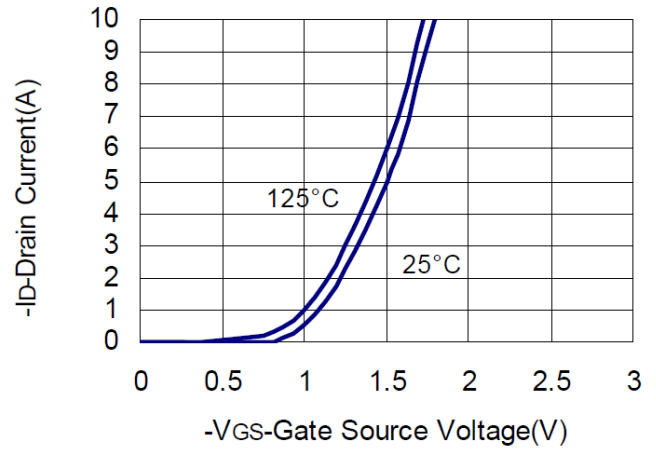
**Drain-Source On Resistance**



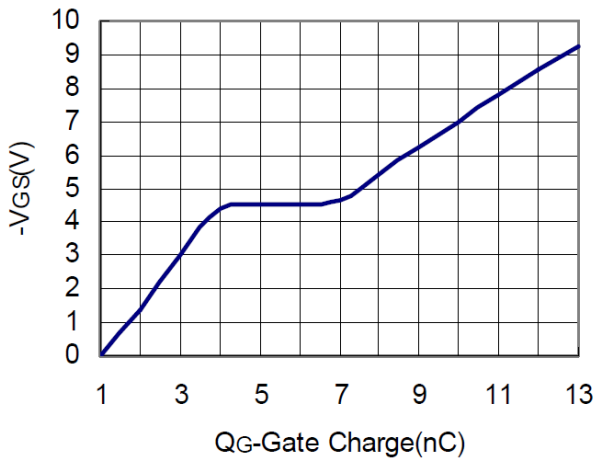
**Drain Source On Resistance**



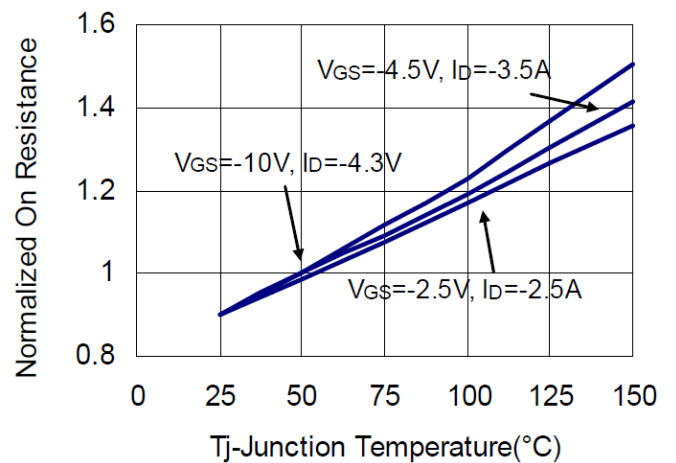
**Transfer Characteristics**



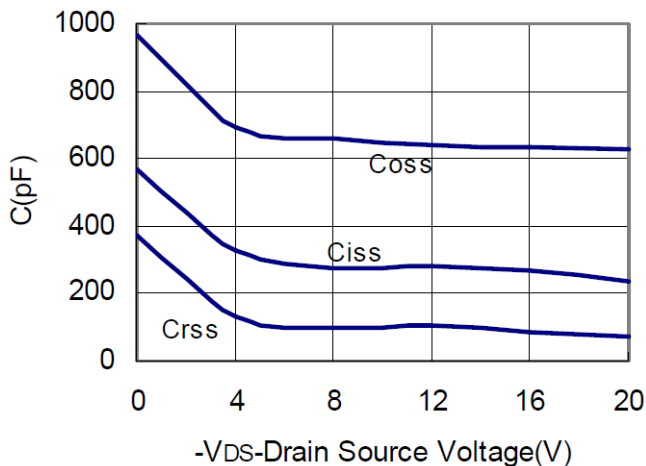
**Gate Charge**



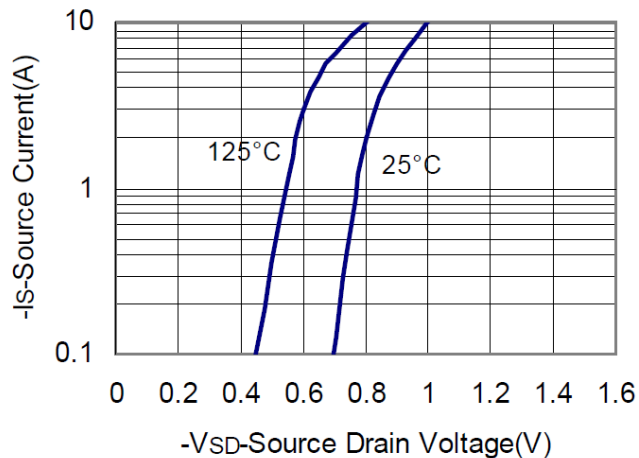
**Drain Source Resistance**



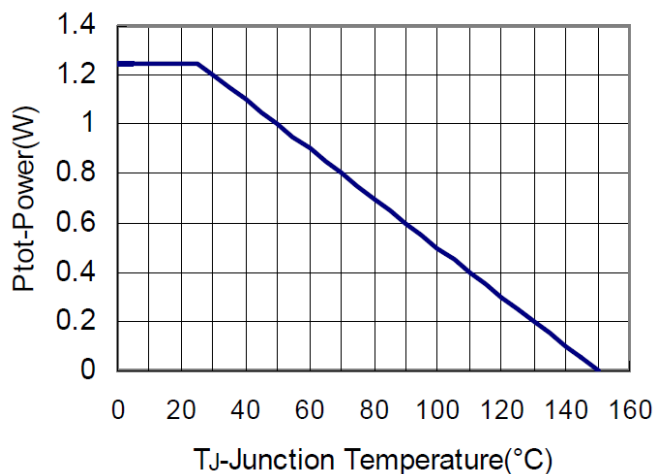
**Capacitance**



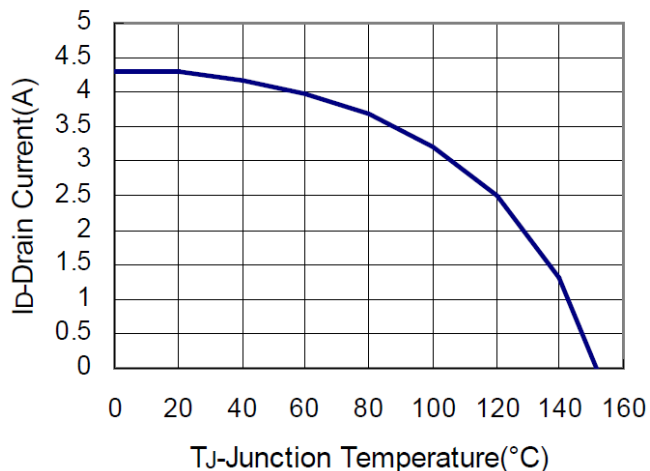
**Source Drain Diode Forward**



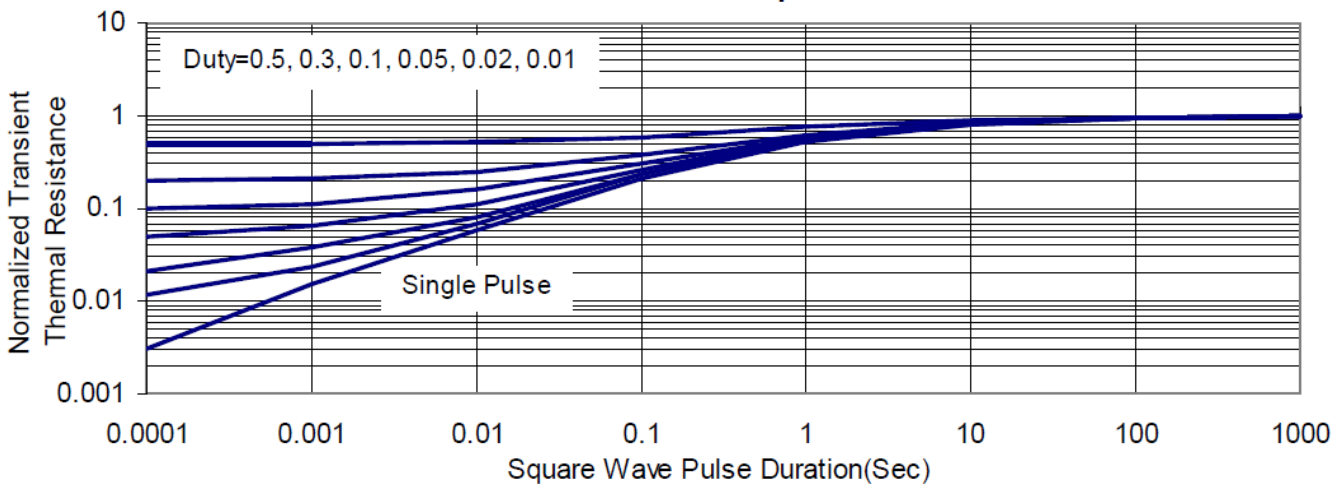
**Power Dissipation**



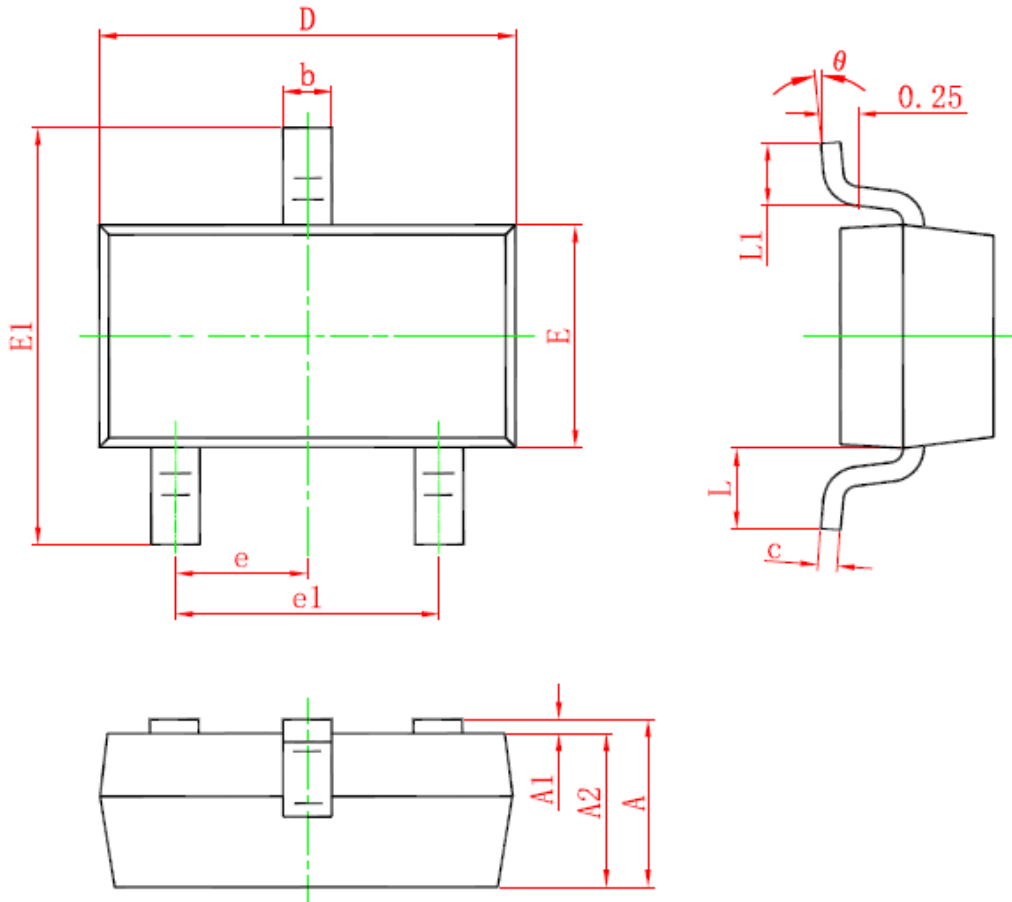
**Drain Current**



**Thermal Transient Impedance**



**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°