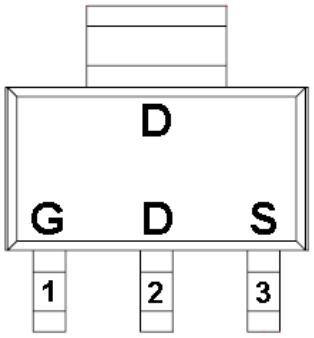
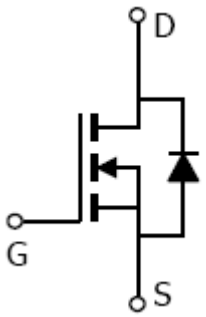
SPN8454
N-Channel Enhancement Mode MOSFET

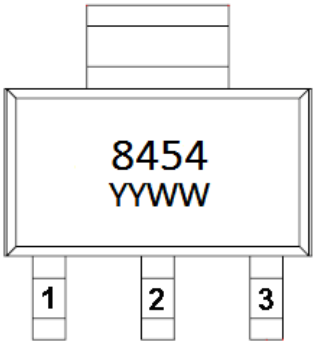
DESCRIPTION
The SPN8454 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology.
This high density process is especially tailored to minimize on-state resistance.
These devices are particularly suited for low voltage application , notebook computer power management and other battery powered circuits where high-side switching .

APPLICATIONS
- DC/DC Converter
- Load Switch
- Synchronous Buck Converter
- SMPS Secondary Side Synchronous Rectifier
- Power Tool
- Motor Control

FEATURES
- 150V/2A,$R_{DS(ON)}$=350mΩ@V_{GS}=10V
- 150V/1A,$R_{DS(ON)}$=400mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-223 package design

PIN CONFIGURATION(SOT– 223)




PART MARKING


Y : Year Code
W : Week Code

SPN8454
N-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

Pin	Symbol	Description
1	G	Gate
2	D	Drain
3	S	Source

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN8454S22RGB	SOT-223	8454

※ SPN8454S22RGB : Pb – Free ; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

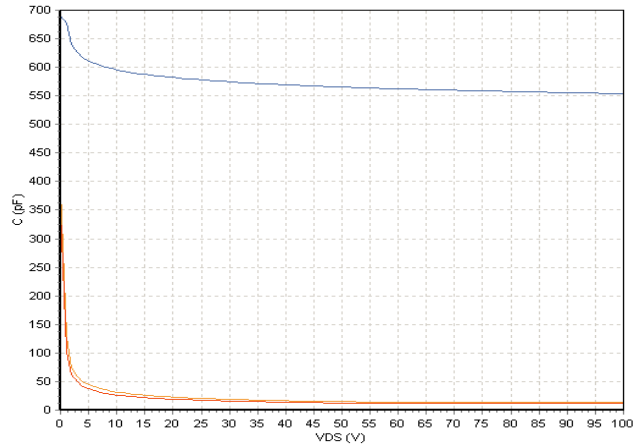
Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	150	V
Gate –Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	2.8	A
Pulsed Drain Current		I_{DM}	12	A
Power Dissipation	T_C=25℃	P_D	2.8	W
	T_A=70℃		1.1	
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient (steady state)		$R_{\theta JA}$	42	℃/W

SPN8454
N-Channel Enhancement Mode MOSFET

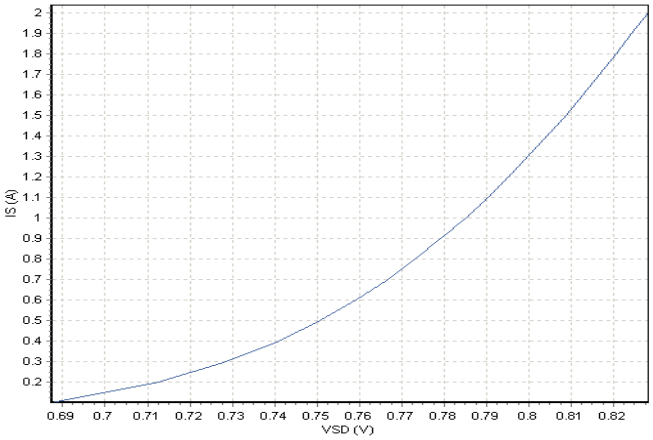
ELECTRICAL CHARACTERISTICS
(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	150			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	1.0		2.5	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=120V,V_{GS}=0V T_J=25℃			1	uA
		V_{DS}=120V,V_{GS}=0V T_J=125℃			10	
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}= 10V,I_D=2A		320	350	mΩ
		V_{GS}=4.5V,I_D=1A		350	400	
Forward Transconductance	gfs	V_{DS}=10V,I_D=2A		2.4		S
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS} =0V			1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=120V, V_{GS}=10V, I_D=2A		9	13	nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			1.4		
Input Capacitance	C_{iss}	V_{DS}=120V,V_{GS}=0V f=1MHz		508		pF
Output Capacitance	C_{oss}			29		
Reverse Transfer Capacitance	C_{rss}			16.5		
Turn-On Time	$t_{d(on)}$	V_{DD}=120V, I_D=2A, V_{GS}=10V, R_G=3.3Ω		2		nS
	t_r			21.5		
Turn-Off Time	$t_{d(off)}$			11.2		
	t_f			18.8		

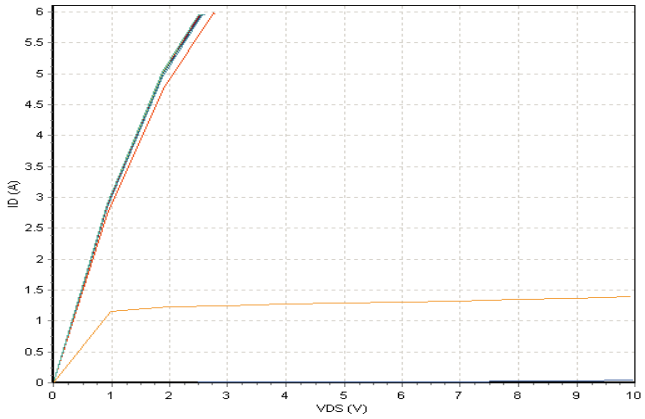
TYPICAL CHARACTERISTICS



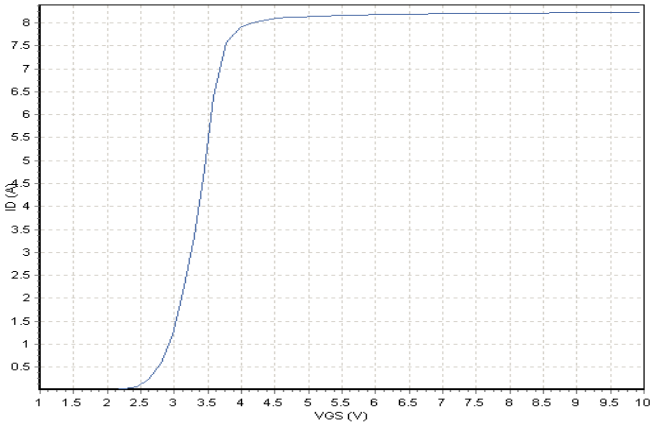
No.1 Capacitance



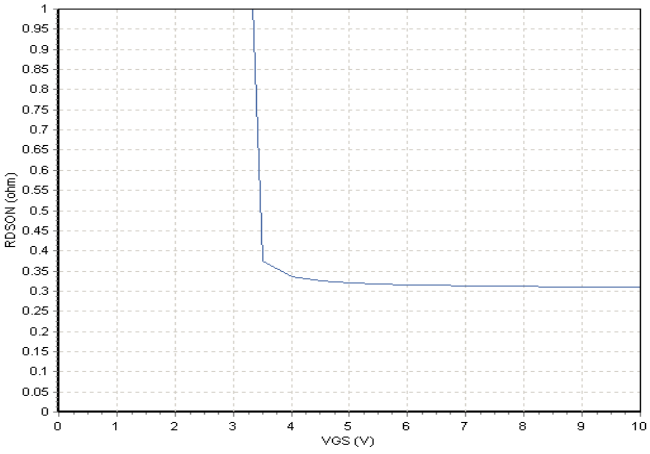
No.2 Source-Drain Diode Forward Voltage



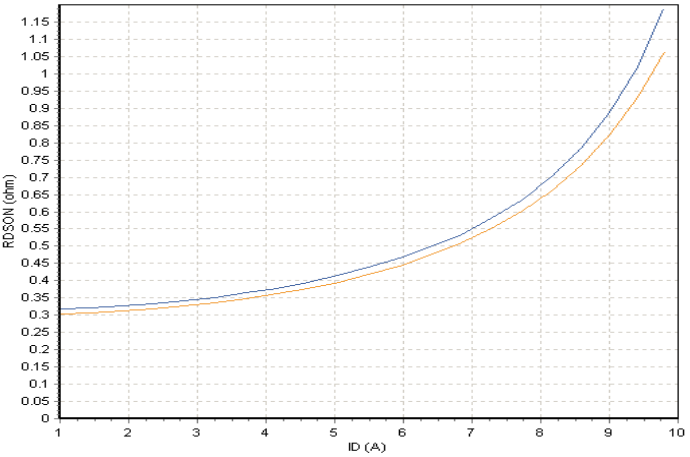
No.3 Output Characteristics



No.4 Transfer Characteristics

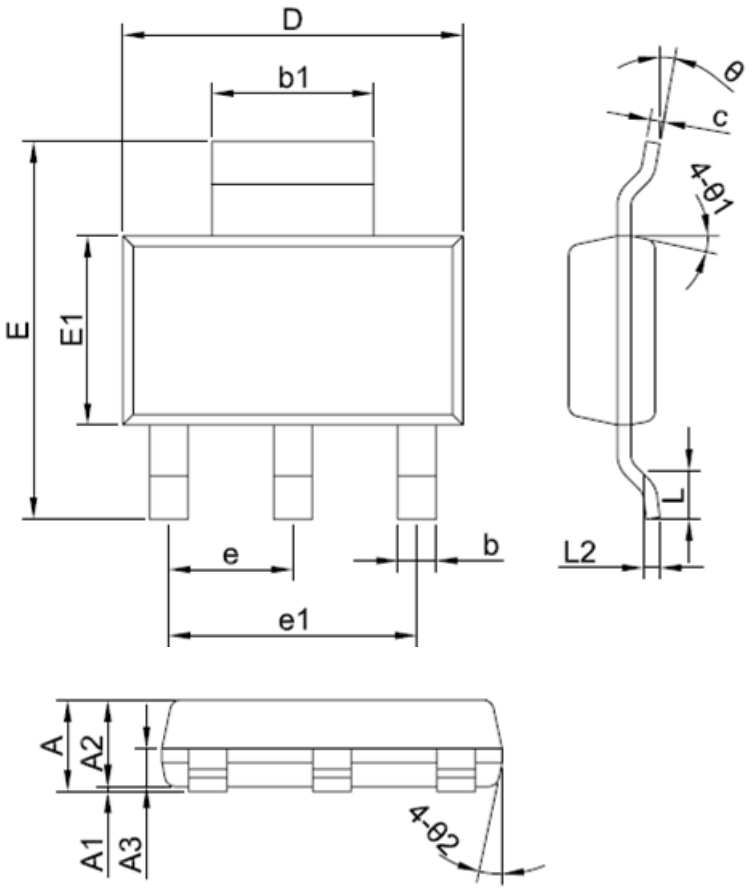


No.5 On-Resistance vs. Gate-to-source Voltage



No.6 On-Resistance vs. Drain Current

SOT-223 PACKAGE OUTLINE



SYMBOL	MIN	NOM	MAX
A	1.52	--	1.80
A1	0.00	--	0.12
A2	1.25	1.60	1.75
A3	0.60	0.70	0.82
b	0.60	--	0.82
b1	2.90	--	3.10
c	0.24	--	0.35
D	6.20	6.30	6.50
E	6.70	7.00	7.30
E1	3.30	3.50	3.70
e	2.30 REF		
e1	4.60 REF		
L	0.90MIN		
L2	0.30BSC		
θ	0°	--	10°
θ1	10°	12°	14°
θ2	10°	12°	14°

SYNC Power Corporation
7F-2, No.3-1, Park Street NanKang
District (NKSP), Taipei, Taiwan 115
Phone: 886-2-2655-8178
Fax: 886-2-2655-8468
© http://www.syncpower.com