



SPN1028

Dual N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN1028 is the Dual N-Channel enhancement mode field effect transistors are produced using high cell density DMOS technology. These products have been designed to minimize on-state resistance while provide rugged, reliable, and fast switching performance. They can be used in most applications requiring up to 640mA DC and can deliver pulsed currents up to 950mA. These products are particularly suited for low voltage, low current applications such as small servo motor control, power MOSFET gate drivers, and other switching applications.

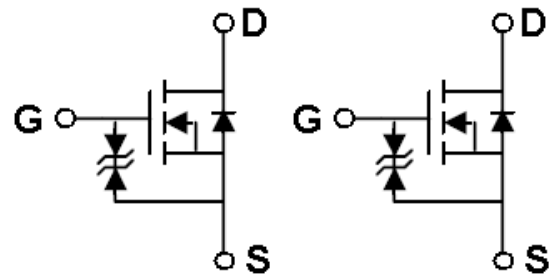
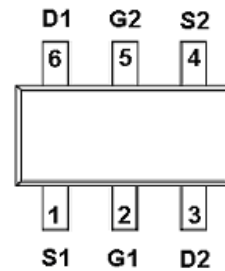
FEATURES

- ◆ 30V/0.95A , $R_{DS(ON)}= 550m\Omega@V_{GS}=4.5V$
- ◆ 30V/0.75A , $R_{DS(ON)}= 650m\Omega@V_{GS}=2.5V$
- ◆ 30V/0.65A , $R_{DS(ON)}=850m\Omega @ V_{GS}=1.8V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-563 (SC-89-6L) package design

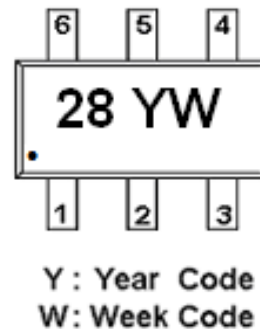
APPLICATIONS

- Drivers: Relays, Solenoids, Lamps, Hammers, Display, Memories, Transistors, etc.
- High saturation current capability. Direct Logic-Level Interface: TTL/CMOS
- Battery Operated Systems
- Solid-State Relays

PIN CONFIGURATION(SOT-563 / SC-89-6L)



PART MARKING





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PIN DESCRIPTION

Pin	Symbol	Description
1	S1	Source 1
2	G1	Gate 1
3	D2	Drain 2
4	S2	Source 2
5	G2	Gate 2
6	D1	Drain1

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN1028S56RGB	SOT-563	28YW

※ Week Code : A ~ Z(1 ~ 26) ; a ~ z(27 ~ 52)

※ SPN1028S56RGB : Tape Reel ; Pb – Free ; Halogen –Free

ABSOLUTE MAXIMUM RATINGS (TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	30	V
Gate –Source Voltage - Continuous	V _{GSS}	±12	V
Continuous Drain Current(T _J =150°C)	I _D	0.64	A
TA=25°C			
Pulsed Drain Current (*)	I _{DM}	0.95	A
Power Dissipation	P _D	1.35	W
TA=25°C			
Operating Junction Temperature	T _J	-55 ~ 150	°C
Storage Temperature Range	T _{STG}	-55 ~ 150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	375	°C/W

(*) Pulse width limited by safe operating area



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ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ Unless otherwise noted)

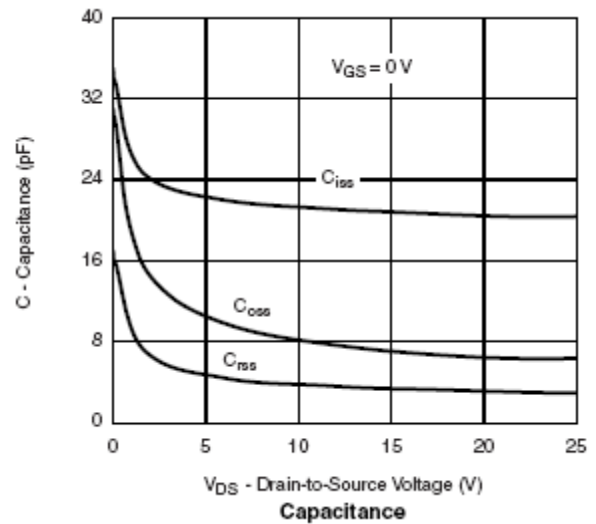
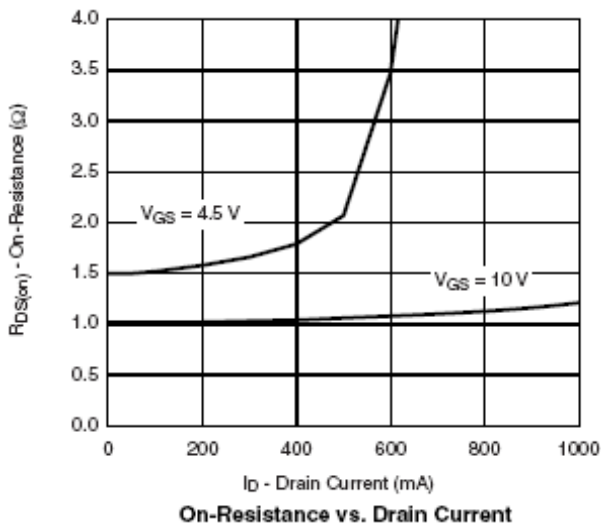
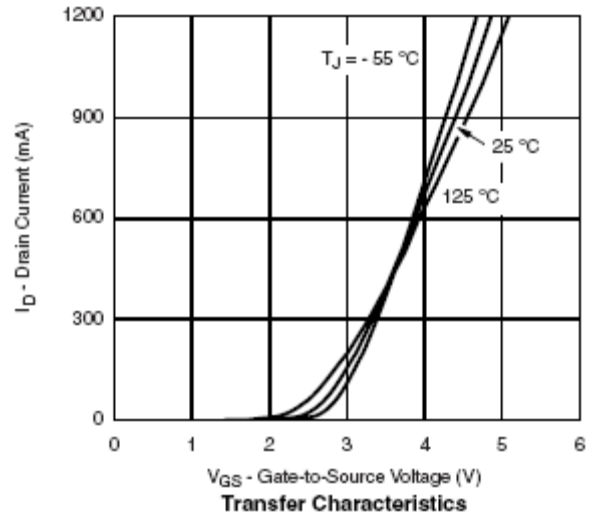
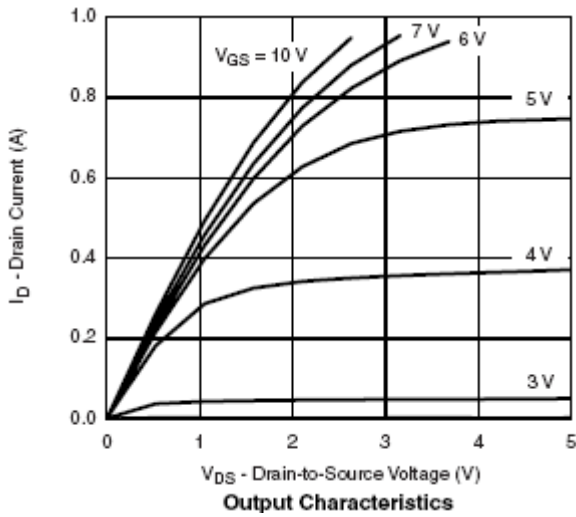
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4		1.0	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 30	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$ $T_J=25^\circ\text{C}$			30	μA
		$V_{DS}=48V, V_{GS}=0V$ $T_J=55^\circ\text{C}$			100	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 4.5V, V_{GS} = 5V$	0.7			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.95A$		0.45	0.55	Ω
		$V_{GS}=2.5V, I_D=0.75A$		0.50	0.65	
		$V_{GS}=1.8V, I_D=0.65A$		0.70	0.85	
Forward Transconductance	G_{fs}	$V_{DS} = 10V, I_D = 0.4A$		1.0		S
Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 0.15A$		0.8	1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DD} = 10V, I_D = 0.6A,$ $V_{GS} = 4.5V$		1.2	1.5	nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.3		
Input Capacitance	C_{iss}	$V_{DS} = 10V, f = 1MHz,$ $V_{GS} = 0V$		7.2		pF
Output Capacitance	C_{oss}			17		
Reverse Transfer Capacitance	C_{rss}			1.6		
Turn-On Time	$t_{d(on)}$	$V_{DD} = 10V, I_D = 0.5A$ $R_G = 6\Omega, V_{GEN} = 4.5V$ $R_L = 10\Omega$		5	10	ns
	t_r			8	15	
Turn-Off Time	$t_{d(off)}$			10	18	
	t_f			1.2	2.8	



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TYPICAL CHARACTERISTICS

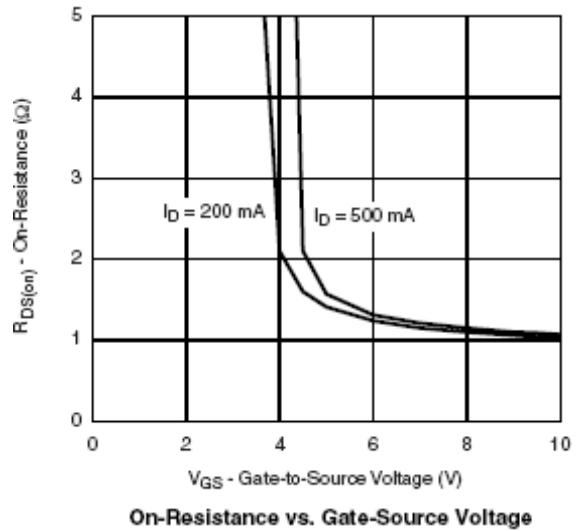
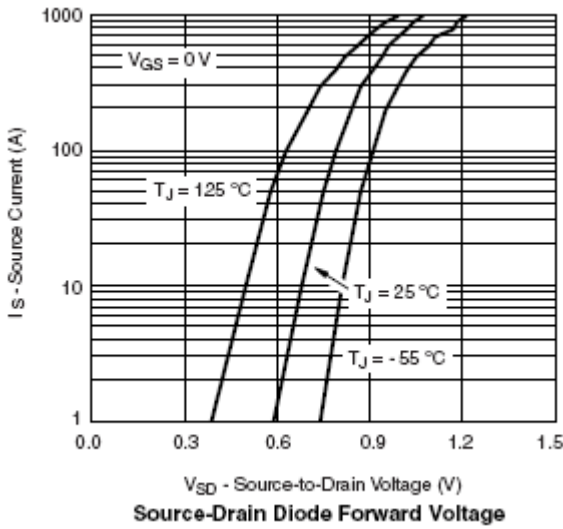
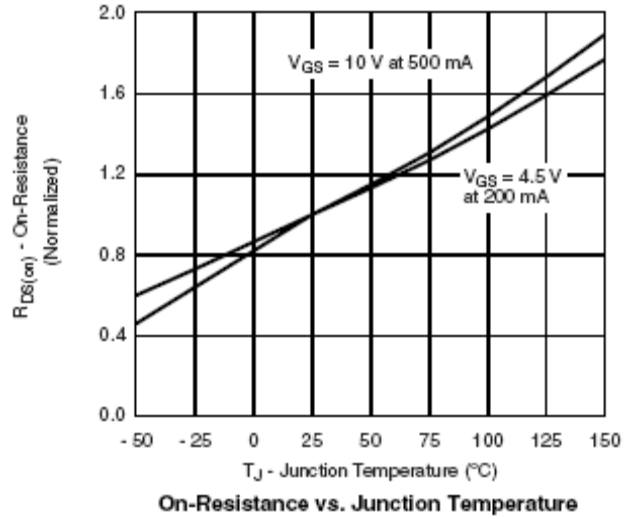
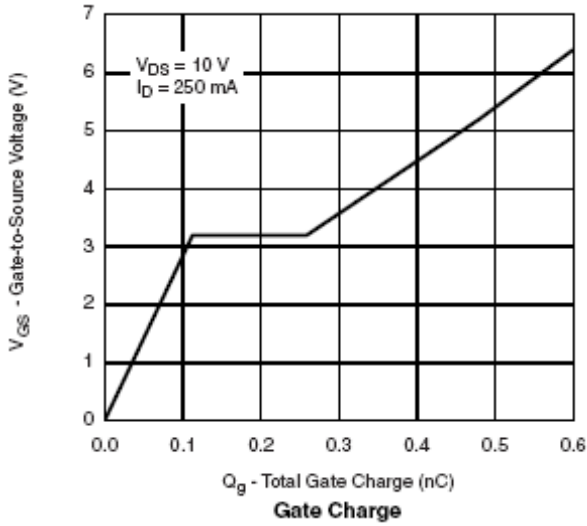




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TYPICAL CHARACTERISTICS

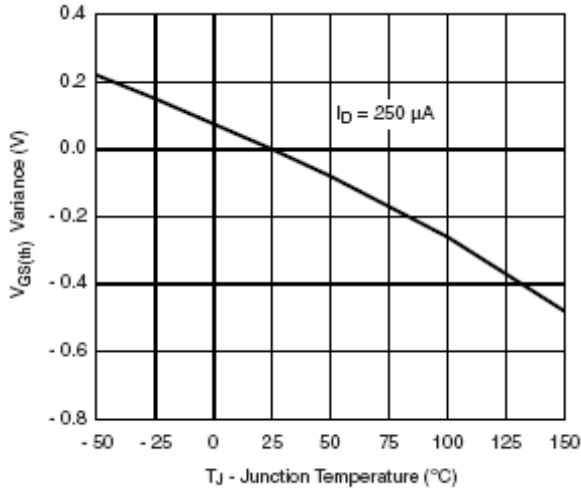




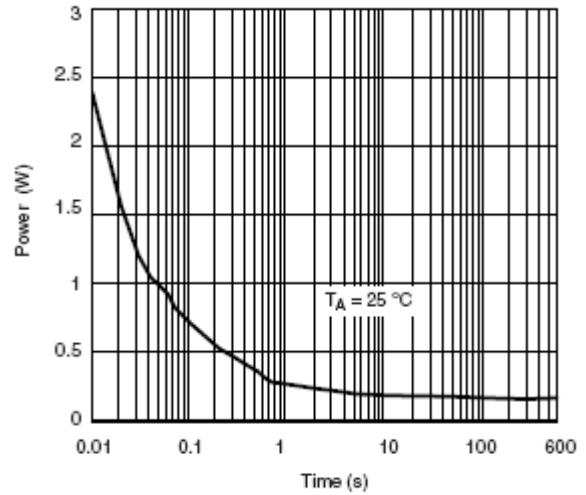
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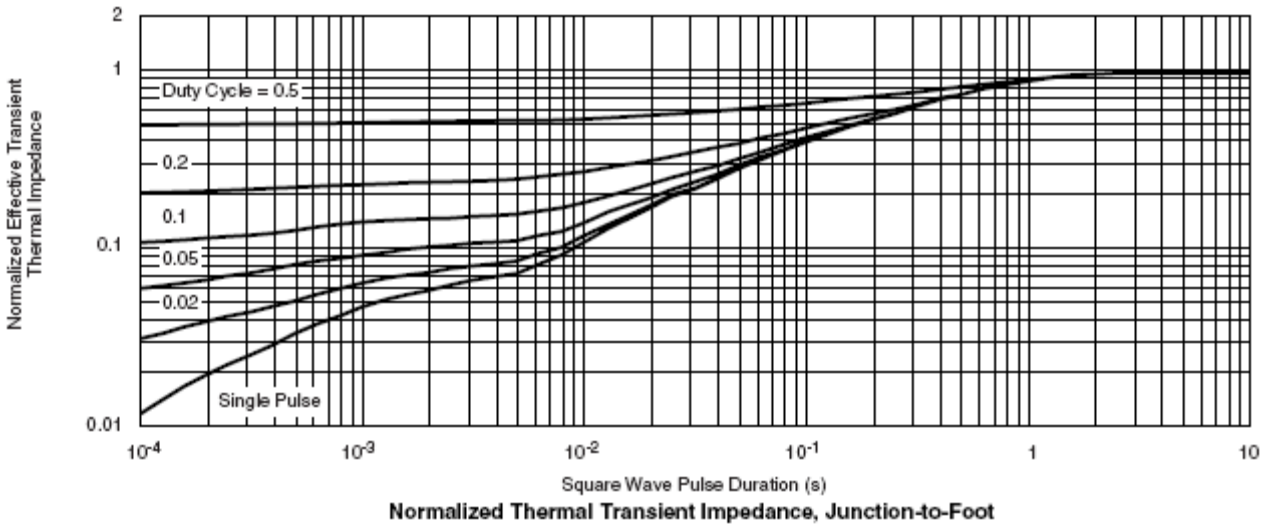
TYPICAL CHARACTERISTICS



Threshold Voltage Variance Over Temperature



Single Pulse Power, Junction-to-Ambient



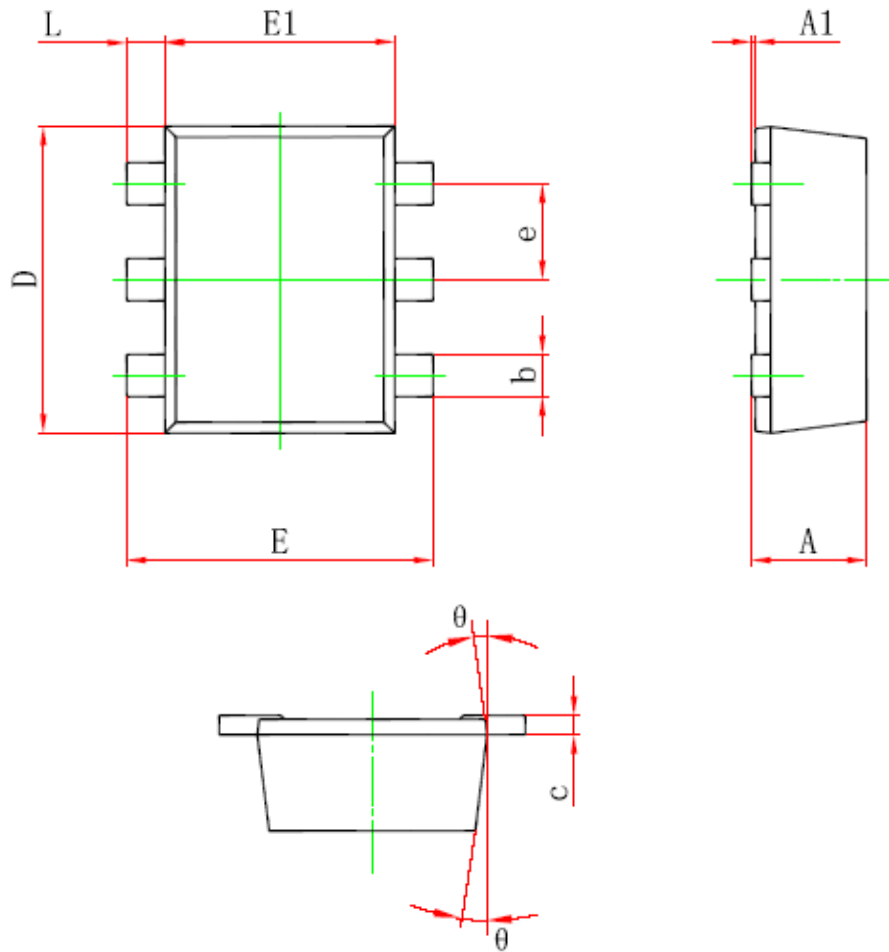
Normalized Thermal Transient Impedance, Junction-to-Foot



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SOT-563 (SC-89-6L) PACKAGE OUTLINE



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
θ	7° REF.		7° REF.	



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