

Power MOSFET 130 mAmps, 50 Volts P–Channel

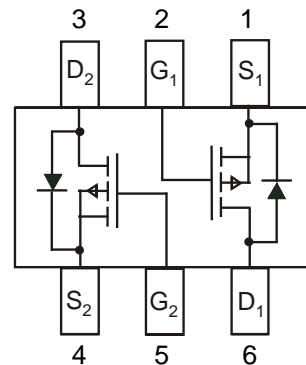
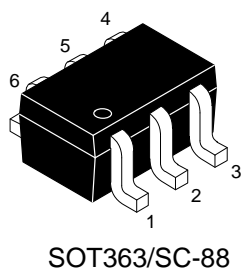
FEATURES:

- Energy Efficient
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

APPLICATIONS:

- Low Side Load Switch
- Level Shift Circuits
- DC–DC Converter

Circuit Diagram & Pin Configuration:



DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
BSS84DW1-S03T	PD	3000/Tape&Reel

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V _{DSS}	50	V _{dc}
Gate-to-Source Voltage – Continuous	V _{GS}	± 20	V _{dc}
Drain Current	I _D	130	mA
– Pulsed Drain Current (t _p ≤ 10 μs)	I _{DM}	520	
Total Power Dissipation @ T _A = 25°C	P _D	380	mW
Operating and Storage Temperature Range	T _J , T _{stg}	– 55 to 150	°C
Thermal Resistance – Junction-to-Ambient	R _{θJA}	328	°C/W
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T _L	260	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Drain-to-Source Breakdown Voltage ($V_{GS} = 0\text{ Vdc}$, $I_D = 250\text{ }\mu\text{Adc}$)	$V_{(BR)DSS}$	50	–	–	Vdc
Zero Gate Voltage Drain Current ($V_{DS} = 25\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$) ($V_{DS} = 50\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$) ($V_{DS} = 50\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$, $T_J = 125^\circ\text{C}$)	I_{DSS}	– – –	– – –	0.1 15 60	μAdc
Gate-Body Leakage Current ($V_{GS} = \pm 20\text{ Vdc}$, $V_{DS} = 0\text{ Vdc}$)	I_{GSS}	–	–	± 100	nAdc

ON CHARACTERISTICS (Note 1.)

Gate-Source Threshold Voltage ($V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{Adc}$)	$V_{GS(th)}$	0.8	–	2.0	Vdc
Static Drain-to-Source On-Resistance ($V_{GS} = 5.0\text{ Vdc}$, $I_D = 100\text{ mAdc}$)	$r_{DS(on)}$	–	5.0	10	Ohms

DYNAMIC CHARACTERISTICS

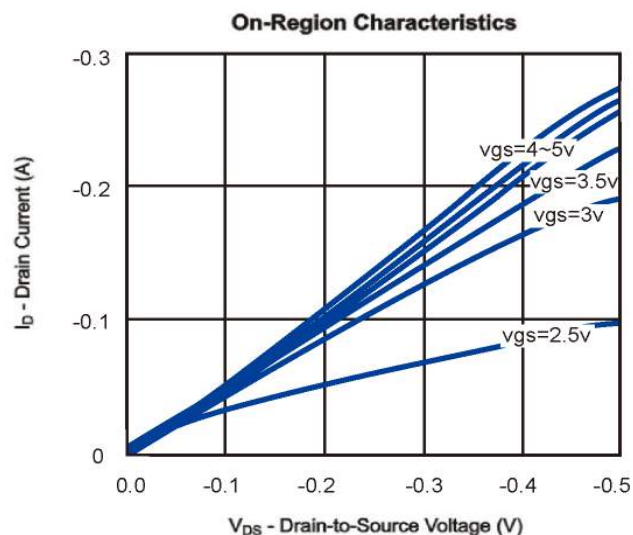
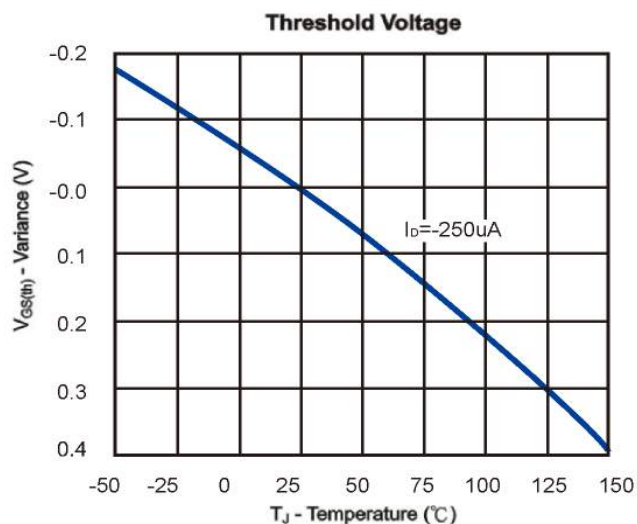
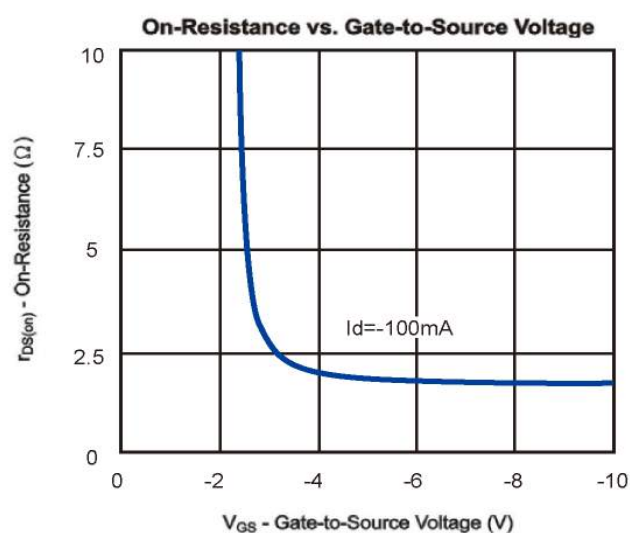
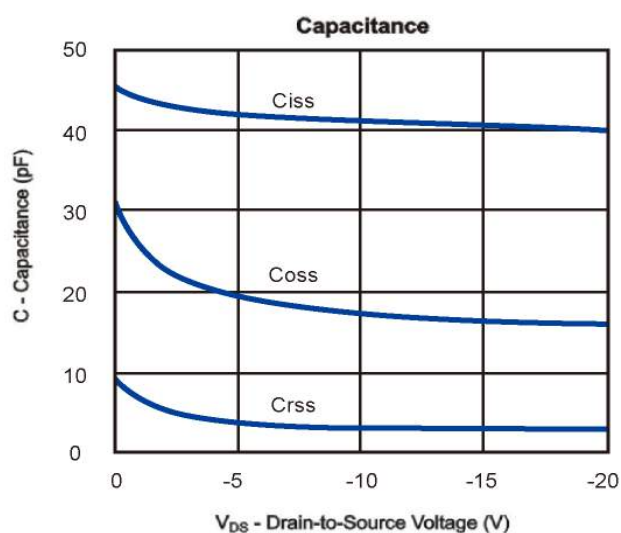
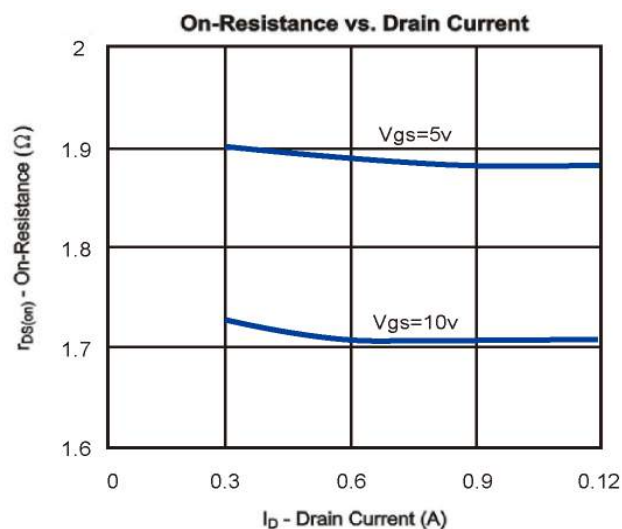
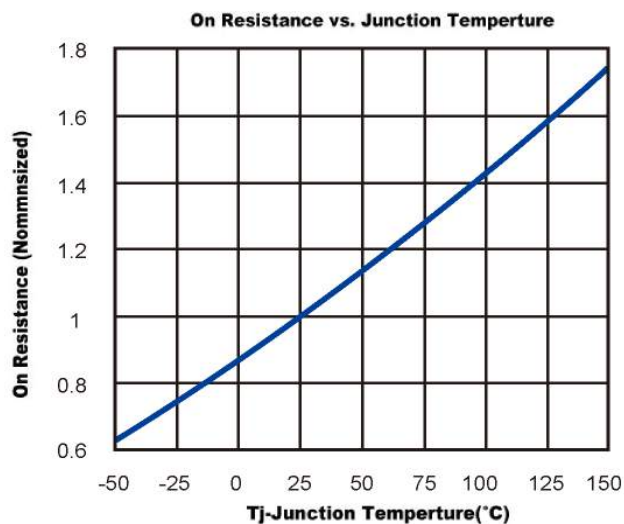
Input Capacitance	($V_{DS} = 5.0\text{ Vdc}$)	C_{iss}	–	42	–	pF
Output Capacitance	($V_{DS} = 5.0\text{ Vdc}$)	C_{oss}	–	20	–	
Transfer Capacitance	($V_{DG} = 5.0\text{ Vdc}$)	C_{rss}	–	4	–	

SWITCHING CHARACTERISTICS (Note 2.)

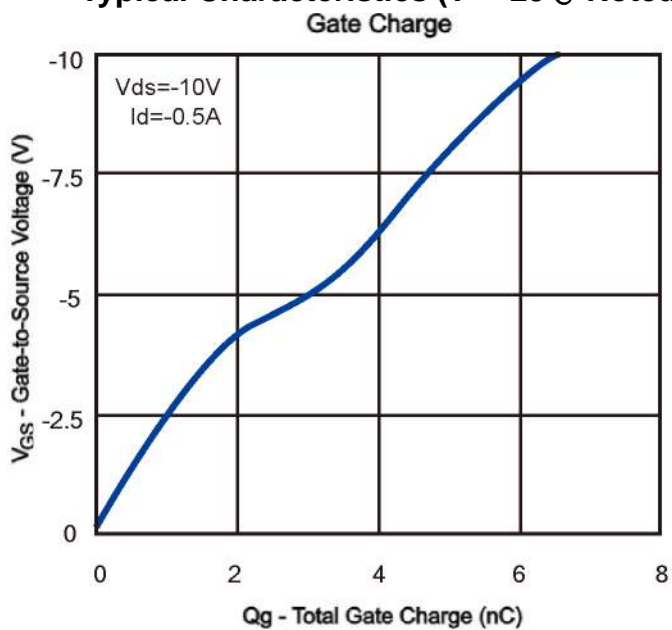
Turn-On Delay Time	($V_{DS} = -15\text{ V}$, $V_{GS} = -10\text{ V}$ $R_L = 50\text{ }\Omega$, $R_G = 25\text{ }\Omega$)	$t_{d(on)}$	–	16.7	–	ns
Rise Time		t_r	–	8.6	–	
Turn-Off Delay Time		$t_{d(off)}$	–	17.9	–	
Fall Time		t_f	–	5.3	–	
Gate Charge		Q_T	–	6000	–	pC

1. Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$.
2. Switching characteristics are independent of operating junction temperature.

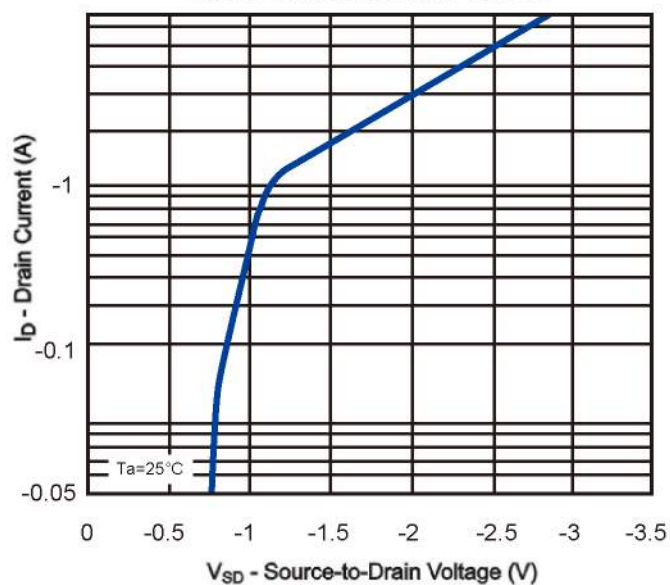
Typical Characteristics (TA = 25°C Noted)



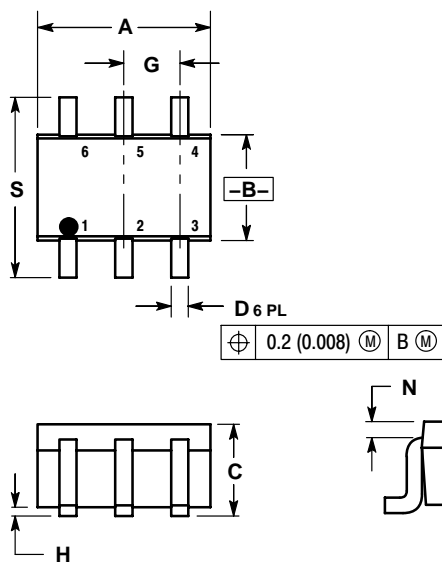
Typical Characteristics (T = 25°C Noted)



On-Resistance vs. Drain Current



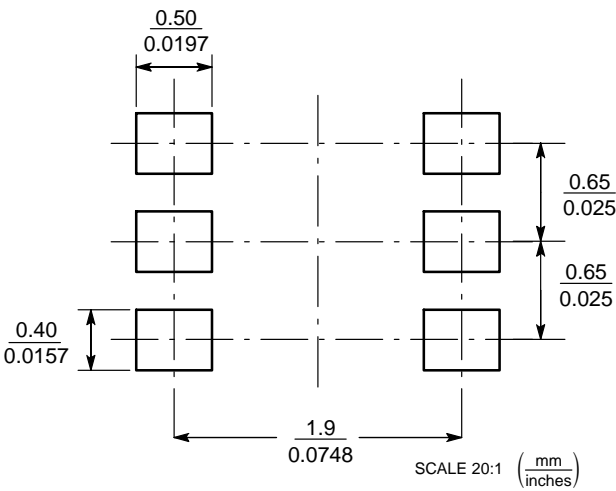
SC-88 (SOT-363)



- NOTES:
- 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 - 2. CONTROLLING DIMENSION: INCH.
 - 3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

SOLDERING FOOTPRINT*



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