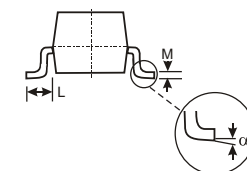
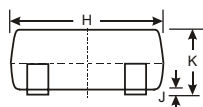
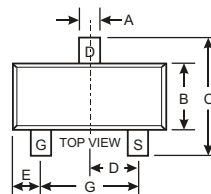


Features

- Low On-Resistance.
- Low Input Capacitance.
- Fast Switching Speed.
- Low Input/Output Leakage.
- ESD Protected Up To 2KV.
- We declare that the material of product compliance with RoHS requirements.



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

APPLICATIONS

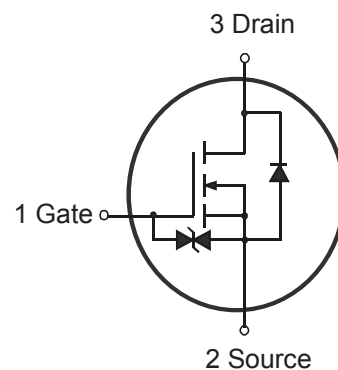
- DC/DC converter circuit.
- Small Signal Switch.
- Load Switch.
- Level Shift.
- Marking Code:W28.

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current	I_D	6.9	A
Peak Drain Current ¹⁾	I_{DM}	4.5	A
Power Dissipation	P_{tot}	0.61	W
Thermal Resistance from Junction to Ambient (PCB mounted) ²⁾	$R_{\theta JA}$	204	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

¹⁾ Repetitive Rating: Pulse width limited by the Maximum junction temperature.

²⁾ 1 in² 2oz Cu PCB board.



Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = 250uA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16 V, V _{GS} =0V			1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} =±5V			±5	uA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 250uA	0.45	0.58	1	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 0.5A		250	400	mΩ
		V _{GS} = 2.5V, I _D = 0.5A		300	500	
		V _{GS} = 1.8V, I _D = 0.35A		350	600	
Forward Transconductance	g _{FS}	V _{DS} = 5 V, I _D = 0.55A		2.0		S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 100 kHz, V _{DS} = 10 V		50		pF
Output Capacitance	C _{OSS}			13		
Reverse Transfer Capacitance	C _{RSS}			8		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 4.5 V, V _{DS} = 10 V, I _D = 0.55A		1.15		nC
Threshold Gate Charge	Q _{G(TH)}			0.06		
Gate-to-Source Charge	Q _{GS}			0.15		
Gate-to-Drain Charge	Q _{GD}			0.23		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V _{DD} =10V, V _{GS} =4.5V, I _D =0.55A, R _G =6Ω		22		ns
Rise Time	tr			80		
Turn-Off Delay Time	td(OFF)			700		
Fall Time	tf			380		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 0.35A	0.5	0.7	1.5	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10\text{ sec}$.
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

TYPICAL TRANSIENT CHARACTERISTICS

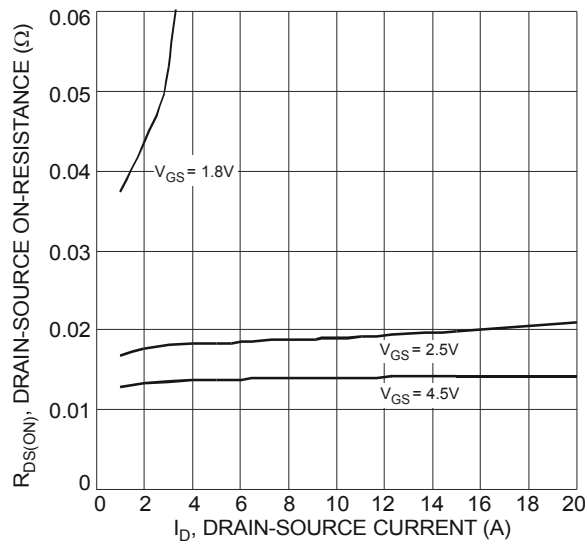


Fig. 1 Typical On-Resistance vs. Drain Current and Gate Voltage

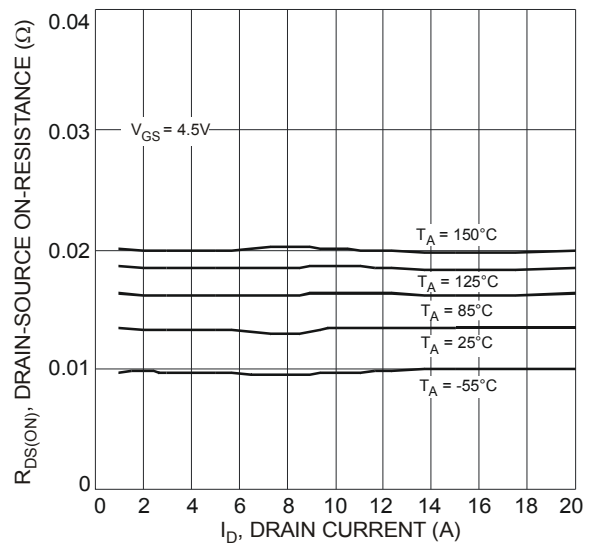


Fig. 2 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

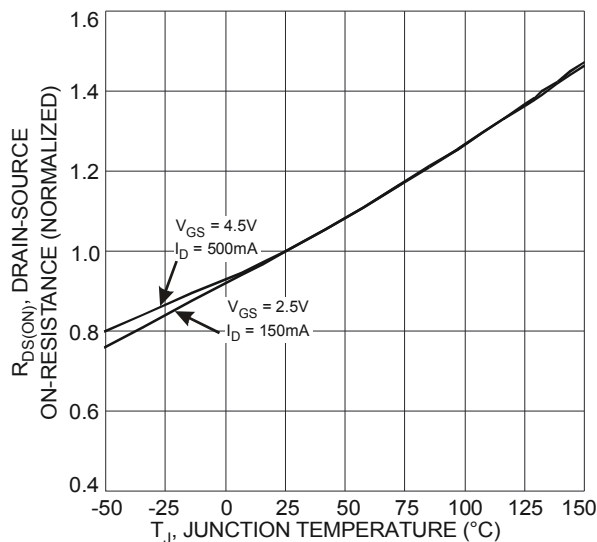


Fig. 3 On-Resistance Variation with Temperature

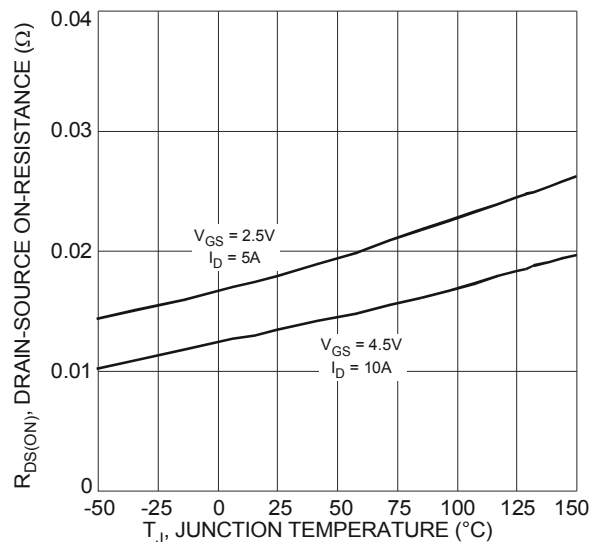


Fig. 4 On-Resistance Variation with Temperature

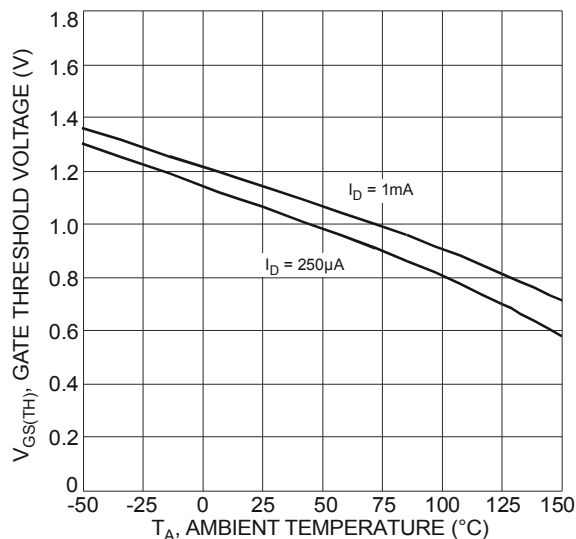


Fig. 5 Gate Threshold Variation vs. Ambient Temperature

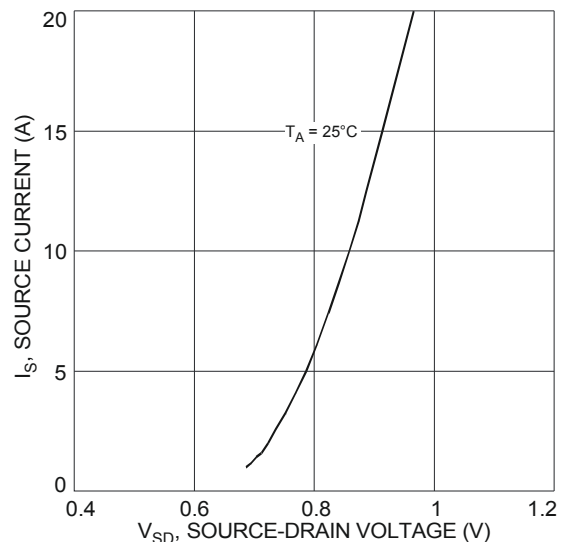


Fig. 6 Diode Forward Voltage vs. Current

TYPICAL TRANSIENT CHARACTERISTICS

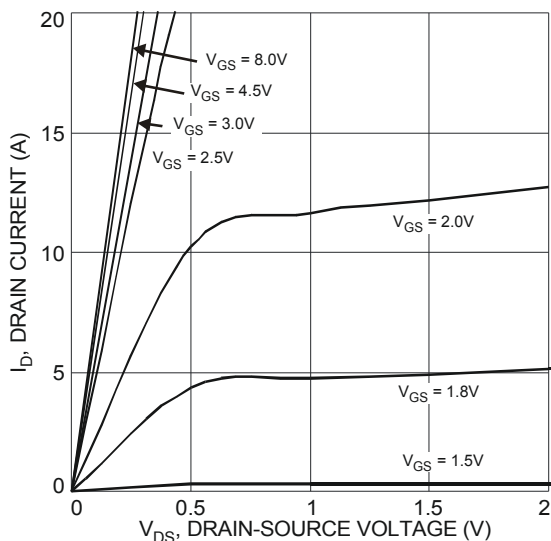


Fig. 7 Typical Output Characteristics

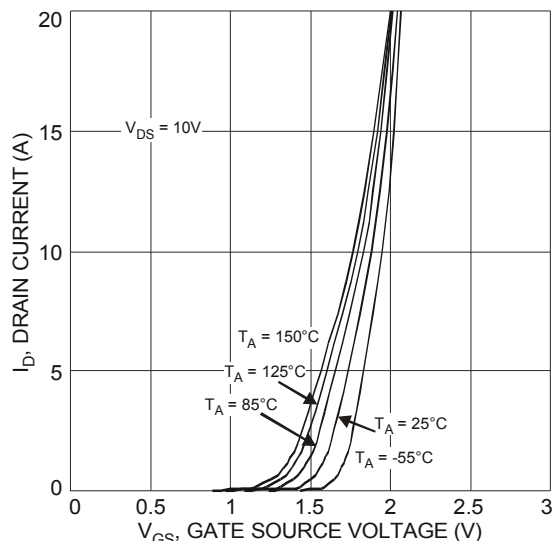


Fig. 8 Typical Transfer Characteristics

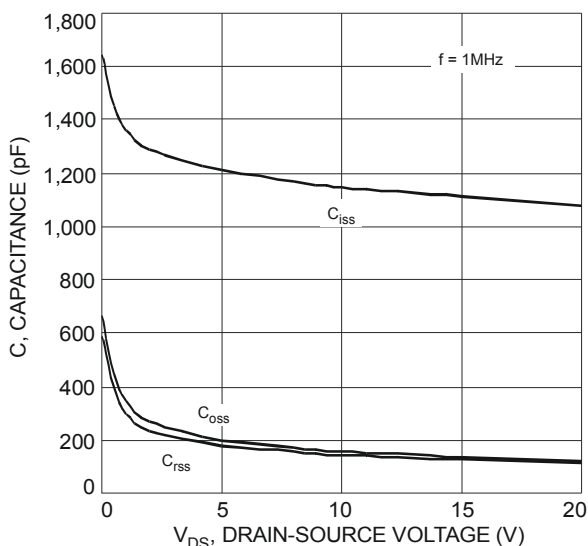


Fig. 9 Typical Capacitance

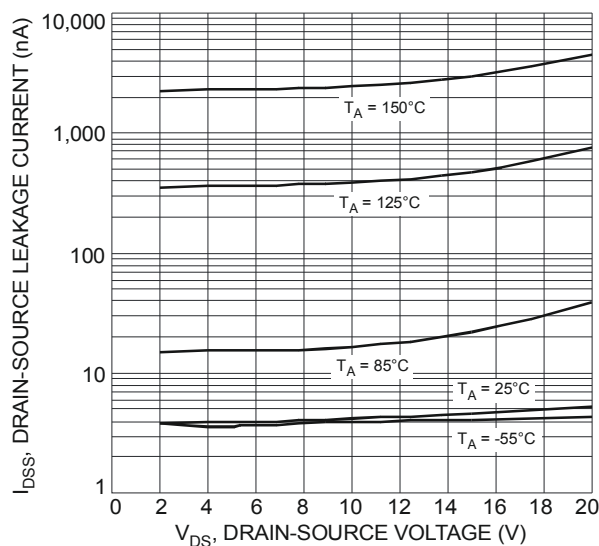


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

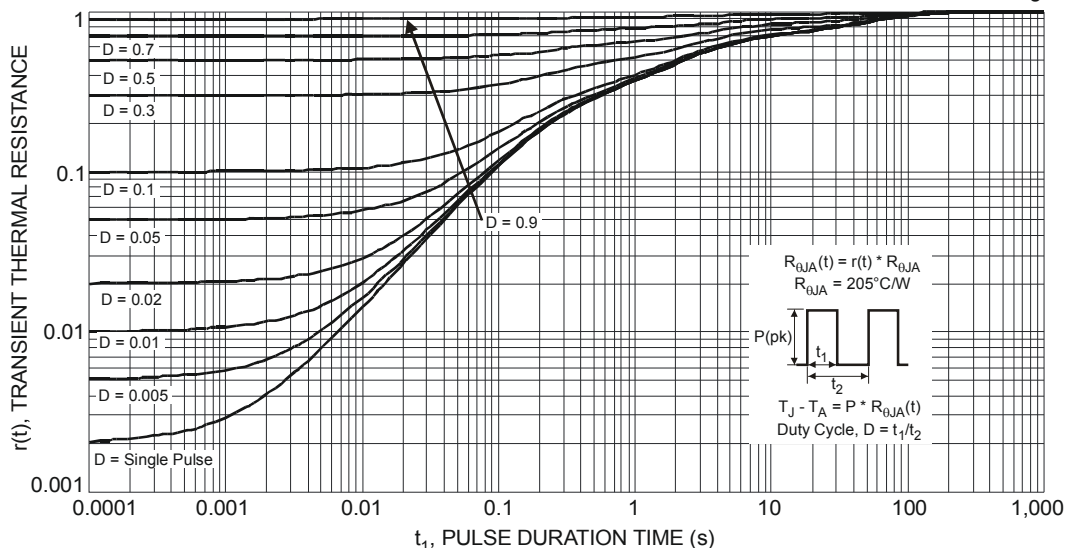


Fig. 11 Transient Thermal Response

IMPORTANT NOTICE

HC-SEMI reserves the right to make changes without further notice to any products herein.

HC-SEMI makes no warranty, representation or guarantee regarding

The suitability of its products for any particular purpose, nor does HC-SEMI assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages.

“Typical” parameters can and do vary in different applications. All operating parameters, including “Typicals” must be validated for each customer application by customer’s technical experts.

HC-SEMI products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the HC-SEMI product could create a situation where personal injury or death may occur.

Should Buyer purchase or use HC-SEMI products for any such unintended or unauthorized application, Buyer shall indemnify and hold HC-SEMI and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that HC-SEMI was negligent regarding the design or manufacture of the part.