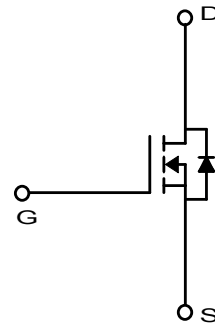
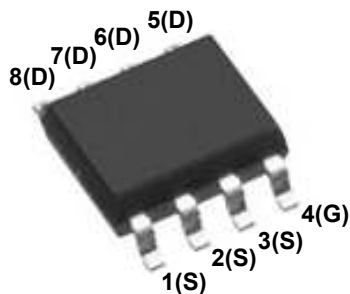


General Description

The MDS1528 uses advanced MagnaChip's MOSFET Technology, which provides high performance in on-state resistance, fast switching performance and excellent quality. MDS1528 is suitable for DC/DC converter and general purpose applications.

Features

- $V_{DS} = 30V$
- $I_D = 11.9A$ @ $V_{GS} = 10V$
- $R_{DS(ON)} < 18.8m\Omega$ @ $V_{GS} = 10V$
 $< 27.8m\Omega$ @ $V_{GS} = 4.5V$
- 100% UIL Tested
- 100% Rg Tested



Absolute Maximum Ratings ($T_a = 25^\circ C$)

Characteristics		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	± 20	V
Continuous Drain Current ⁽¹⁾	$T_C = 25^\circ C$	I_D	11.9	A
	$T_C = 70^\circ C$		9.5	
	$T_A = 25^\circ C$		8.7 ⁽³⁾	
	$T_A = 70^\circ C$		6.9 ⁽³⁾	
Pulsed Drain Current		I_{DM}	40	A
Power Dissipation	$T_C = 25^\circ C$	P_D	4.7	W
	$T_C = 70^\circ C$		3.0	
	$T_A = 25^\circ C$		2.5 ⁽³⁾	
	$T_A = 70^\circ C$		1.6 ⁽³⁾	
Single Pulse Avalanche Energy ⁽²⁾		E_{AS}	20	mJ
Junction and Storage Temperature Range		T_J, T_{stg}	-55~150	$^\circ C$

Thermal Characteristics

Characteristics	Symbol	Rating	Unit
Thermal Resistance, Junction-to-Ambient ⁽¹⁾	$R_{\theta JA}$	50	$^\circ C/W$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	26.4	

Ordering Information

Part Number	Temp. Range	Package	Packing	Quantity	RoHS Status
MDS1528URH	-55~150°C	SOIC-8	Tape & Reel	3000 units	Halogen Free

Electrical Characteristics (T_J = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = 250μA, V _{GS} = 0V	30	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.3	1.9	2.7	
Drain Cut-Off Current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V T _J =55°C	-	-	1 5	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±0.1	
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 6A T _J =125°C	-	16.3	18.8	mΩ
		V _{GS} = 4.5V, I _D = 5A	-	23.6 23.2	27.3 27.8	
Forward Transconductance	g _{fs}	V _{DS} = 5V, I _D = 6A	-	20	-	S
Dynamic Characteristics						
Total Gate Charge	Q _{g(10V)}	V _{DS} = 15.0V, I _D = 6A, V _{GS} = 10V	5.1	7.3	9.5	nC
Total Gate Charge	Q _{g(4.5V)}		2.5	3.6	4.6	
Gate-Source Charge	Q _{gs}		-	1.6	-	
Gate-Drain Charge	Q _{gd}		-	1.3	-	
Input Capacitance	C _{iss}	V _{DS} = 15.0V, V _{GS} = 0V, f = 1.0MHz	317	453	589	pF
Reverse Transfer Capacitance	C _{rss}		30	43	56	
Output Capacitance	C _{oss}		62	88	115	
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DS} = 15.0V, I _D = 6A, R _G = 3.0Ω	-	5.5	-	ns
Rise Time	t _r		-	3.1	-	
Turn-Off Delay Time	t _{d(off)}		-	14.0	-	
Fall Time	t _f		-	2.8	-	
Gate Resistance	R _g	f=1 MHz	1.0	3.2	6.0	Ω
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = 6A, V _{GS} = 0V	-	0.84	1.1	V
Body Diode Reverse Recovery Time	t _{rr}	I _F = 6A, di/dt = 100A/μs	-	15.9	23.8	ns
Body Diode Reverse Recovery Charge	Q _{rr}		-	8.7	13.1	nC

Note :

1. Surface mounted FR-4 board by JEDEC (jesd51-7)
2. E_{AS} is tested at starting T_J = 25°C, L = 0.1mH, I_{AS} = 10.8A, V_{DD} = 27V, V_{GS} = 10V
3. T < 10sec

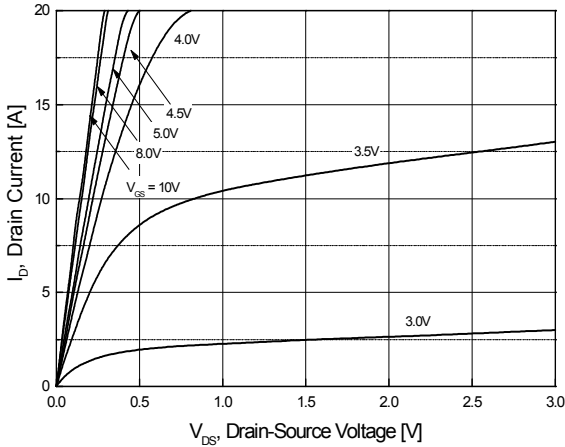


Fig.1 On-Region Characteristics

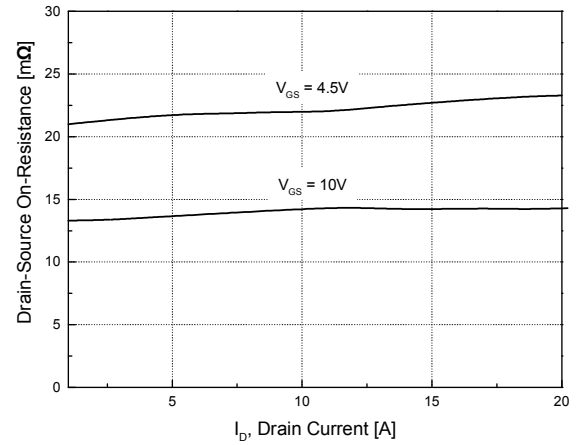


Fig.2 On-Resistance Variation with Drain Current and Gate Voltage

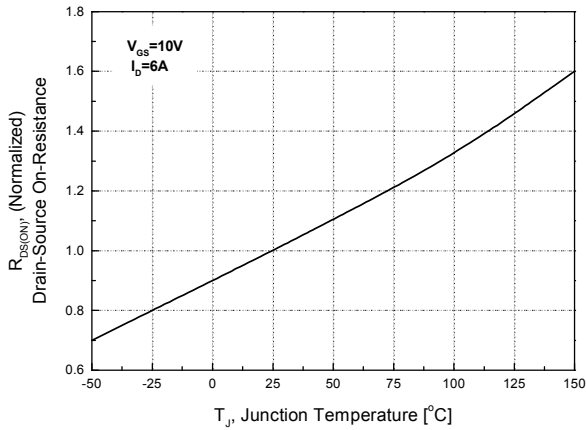


Fig.3 On-Resistance Variation with Temperature

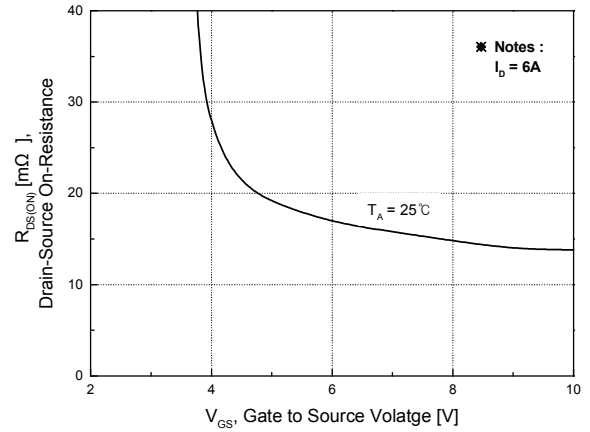


Fig.4 On-Resistance Variation with Gate to Source Voltage

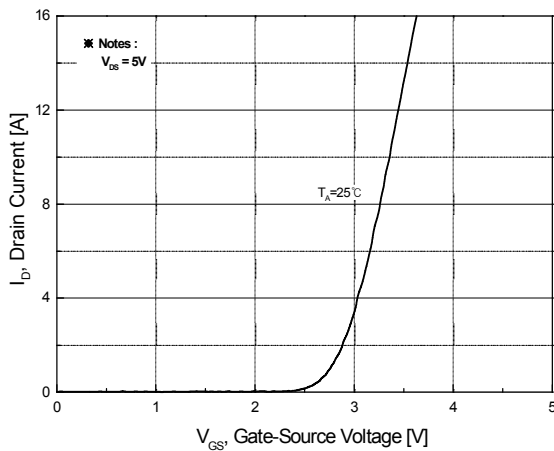


Fig.5 Transfer Characteristics

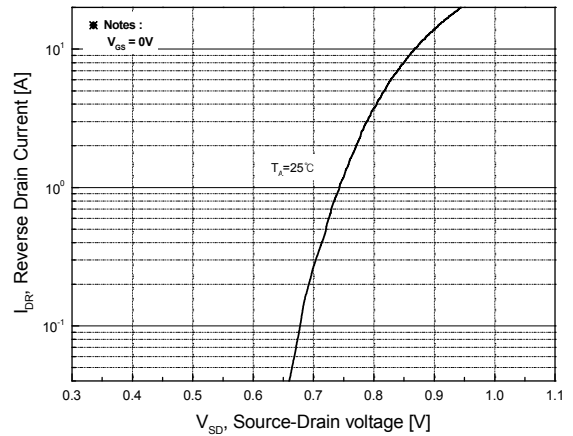
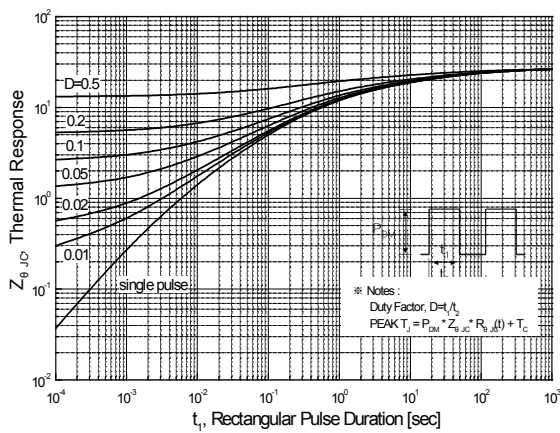
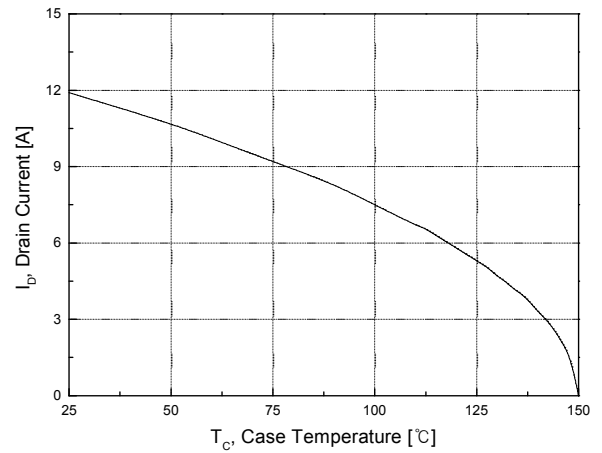
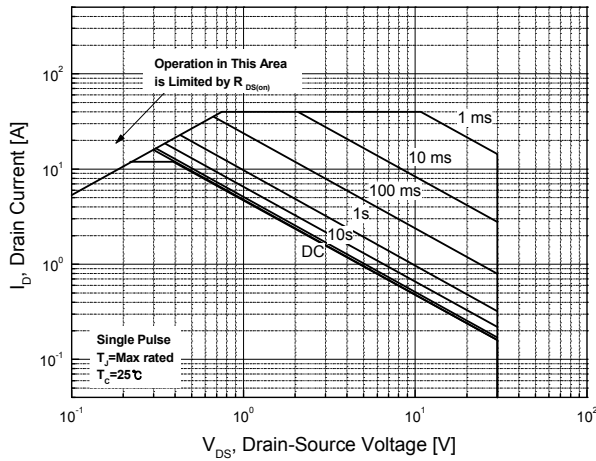
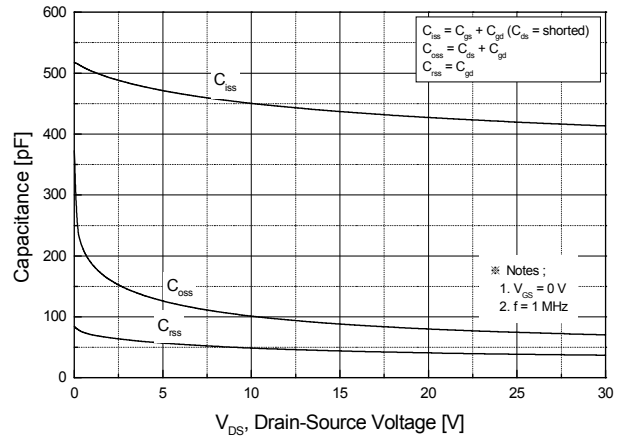
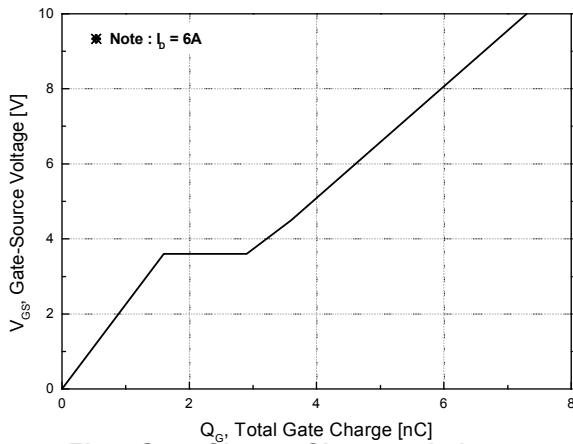


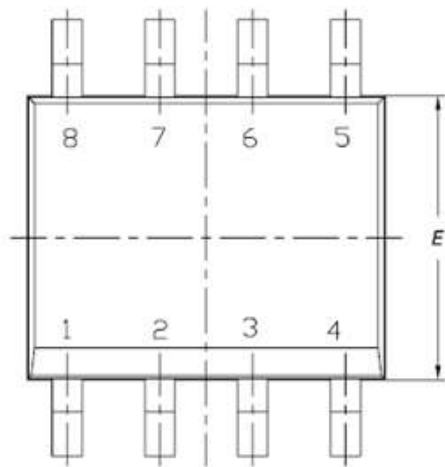
Fig.6 Body Diode Forward Voltage Variation with Source Current and Temperature



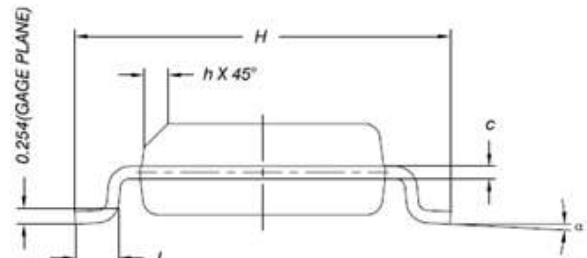
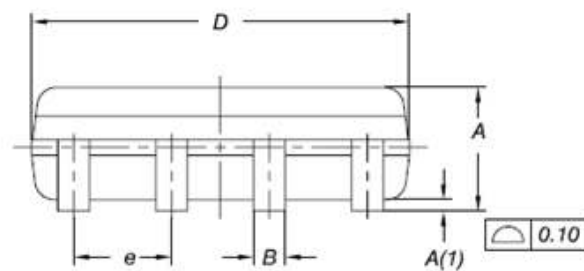
Physical Dimensions

8 Leads, SOIC

Dimensions are in millimeters unless otherwise specified



Symbol	Min	Nom	Max
A	-	-	1.75
A(1)	0.10	-	0.25
B	0.31	-	0.51
C	0.10	-	0.25
D	4.9 BSC		
E	3.9 BSC		
e	1.27 BSC		
H	6.0 BSC		
L	0.40	-	1.27
a	0	-	8
h	0.250	-	0.500
L2(Gage plane)	0.25 BSC		



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