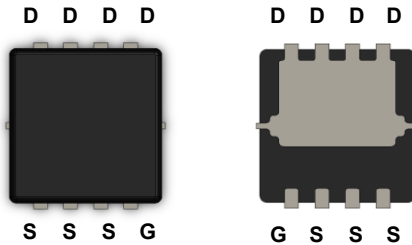


### General Description

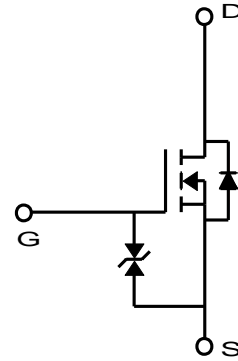
The MDV1529E uses advanced Magnachip’s MOSFET Technology, which provides high performance in on-state resistance, fast switching performance and excellent quality. MDV1529E is suitable for DC/DC converter and general purpose applications.

### Features

- $V_{DS} = 32V$
- $I_D = 28A @V_{GS} = 10V$
- $R_{DS(ON)} < 4.5m\Omega @V_{GS} = 10V$   
 $< 6.5m\Omega @V_{GS} = 4.5V$



PDFN33



### Absolute Maximum Ratings (Ta = 25°C unless otherwise specified)

Characteristics		Symbol	Rating	Unit
Drain-Source Voltage		$V_{DSS}$	30	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Continuous Drain Current <sup>(1)</sup>	$T_C=25^\circ C$ (Silicon limited)	$I_D$	56.4	A
	$T_C=25^\circ C$ (Package limited)		28	
	$T_C=70^\circ C$		28	
Pulsed Drain Current		$I_{DM}$	84	A
Power Dissipation	$T_C=25^\circ C$	$P_D$	27.7	W
	$T_C=70^\circ C$		17.7	
Single Pulse Avalanche Energy <sup>(2)</sup>		$E_{AS}$	136	mJ
Junction and Storage Temperature Range		$T_J, T_{stg}$	-55~150	°C

### Thermal Characteristics

Characteristics	Symbol	Rating	Unit
Thermal Resistance, Junction-to-Ambient <sup>(1)</sup>	$R_{\theta JA}$	36	°C/W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	4.5	

## Ordering Information

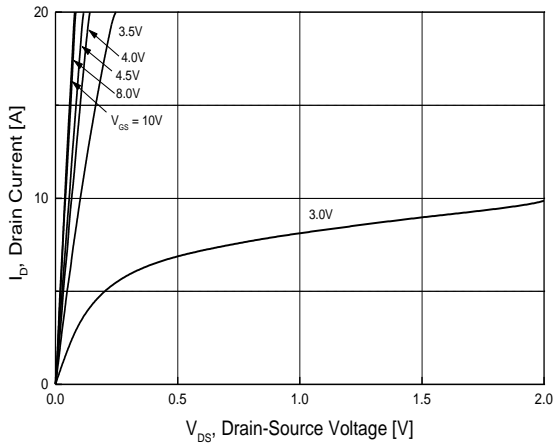
Part Number	Temp. Range	Package	Packing	Quantity	RoHS Status
MDV1529EURH	-55~150°C	PDFN33	Tape & Reel	5000 units	Halogen Free

## Electrical Characteristics (Ta = 25°C unless otherwise specified)

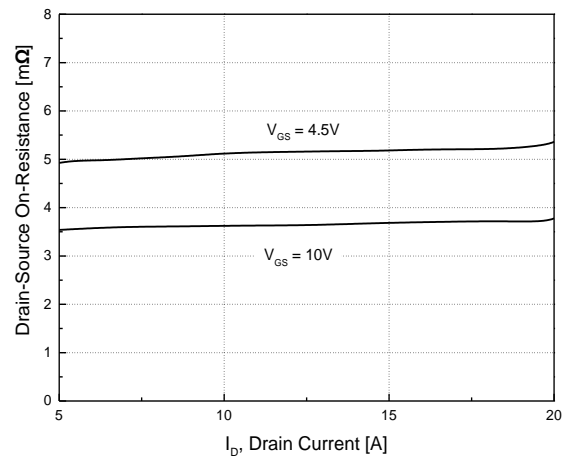
Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D = 250\mu A, V_{GS} = 0V$	32	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.9	2.7	
Drain Cut-Off Current	$I_{DSS}$	$V_{DS} = 32V, V_{GS} = 0V$	-	-	10	$\mu A$
Gate Leakage Current	$I_{GSS}$	$V_{GS} = \pm 16V, V_{DS} = 0V$	-	-	$\pm 10$	
Drain-Source ON Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 16A$	-	3.7	4.5	m $\Omega$
		$V_{GS} = 4.5V, I_D = 13A$	-	5.2	6.5	
<b>Dynamic Characteristics</b>						
Total Gate Charge	$Q_{g(10V)}$	$V_{DS} = 15.0V, I_D = 16A, V_{GS} = 10V$	-	44.0	-	nC
Total Gate Charge	$Q_{g(4.5V)}$		-	22.5	-	
Gate-Source Charge	$Q_{gs}$		-	7.0	-	
Gate-Drain Charge	$Q_{gd}$		-	11.0	-	
Input Capacitance	$C_{iss}$	$V_{DS} = 15.0V, V_{GS} = 0V, f = 1.0MHz$	-	2050	-	pF
Reverse Transfer Capacitance	$C_{rss}$		-	290	-	
Output Capacitance	$C_{oss}$		-	410	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 15.0V, I_D = 16A, R_G = 3.0\Omega$	-	9.0	-	ns
Rise Time	$t_r$		-	5.5	-	
Turn-Off Delay Time	$t_{d(off)}$		-	250	-	
Fall Time	$t_f$		-	215	-	
<b>Drain-Source Body Diode Characteristics</b>						
Source-Drain Diode Forward Voltage	$V_{SD}$	$I_S = 16A, V_{GS} = 0V$	-	0.7	1.2	V

Note :

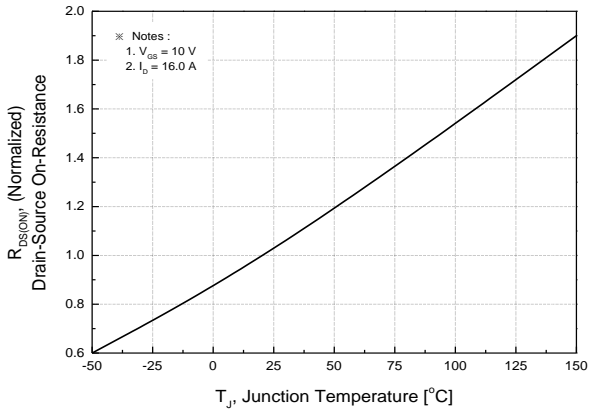
- Surface mounted FR-4 board by JEDEC (jesd51-7)
- $E_{AS}$  is tested at starting  $T_j = 25^\circ C$ ,  $L = 0.1mH$ ,  $I_{AS} = 30.4A$ ,  $V_{DD} = 27V$ ,  $V_{GS} = 10V$ .



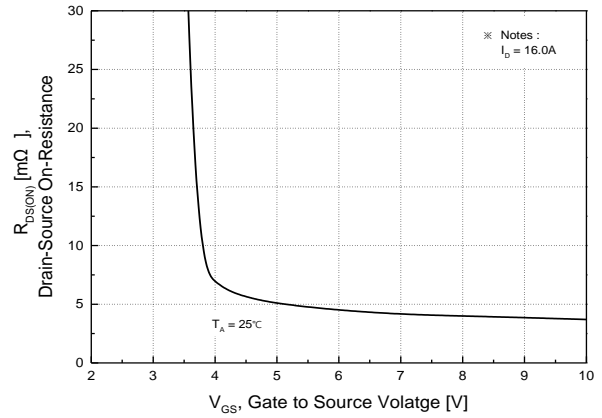
**Fig.1 On-Region Characteristics**



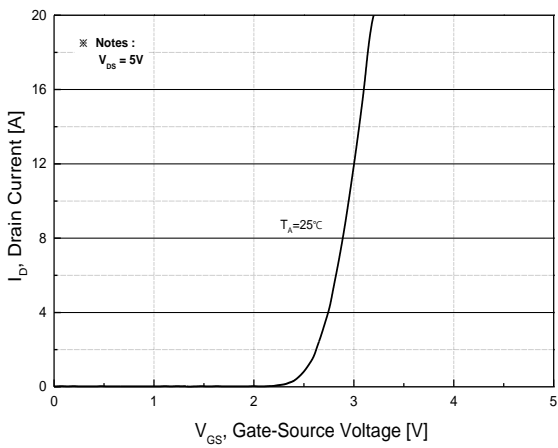
**Fig.2 On-Resistance Variation with Drain Current and Gate Voltage**



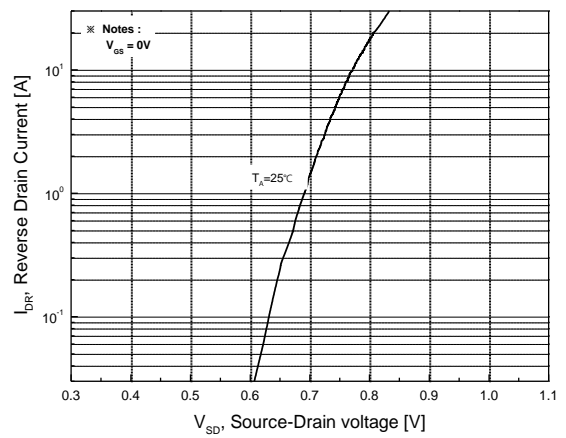
**Fig.3 On-Resistance Variation with Temperature**



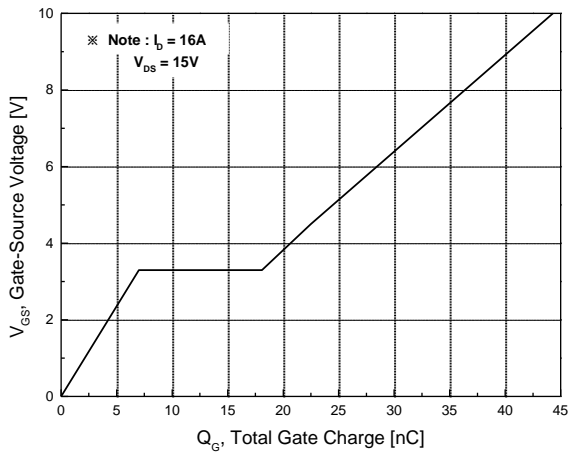
**Fig.4 On-Resistance Variation with Gate to Source Voltage**



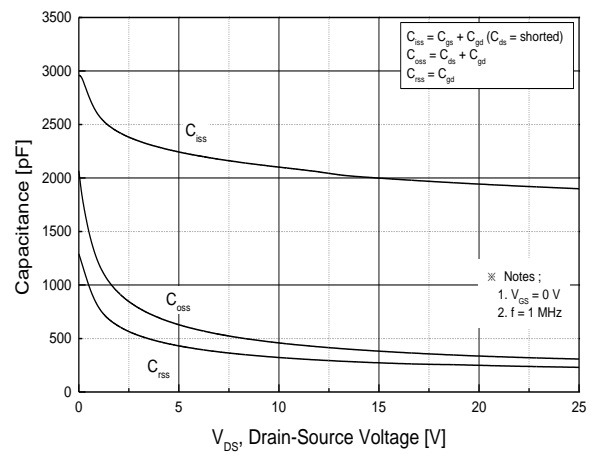
**Fig.5 Transfer Characteristics**



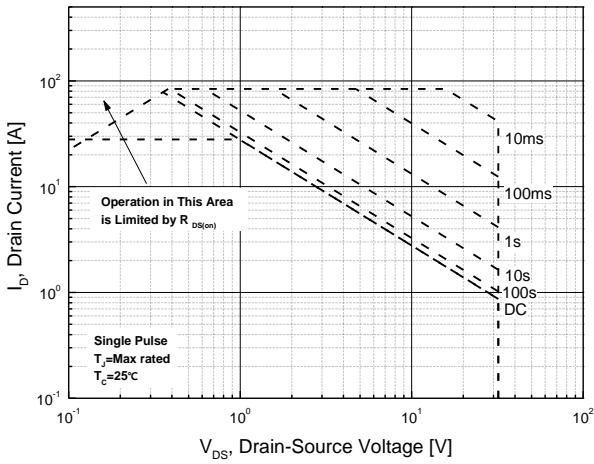
**Fig.6 Body Diode Forward Voltage Variation with Source Current and Temperature**



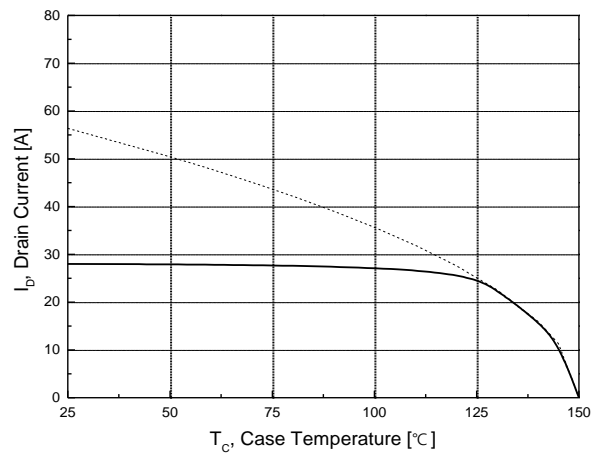
**Fig.7 Gate Charge Characteristics**



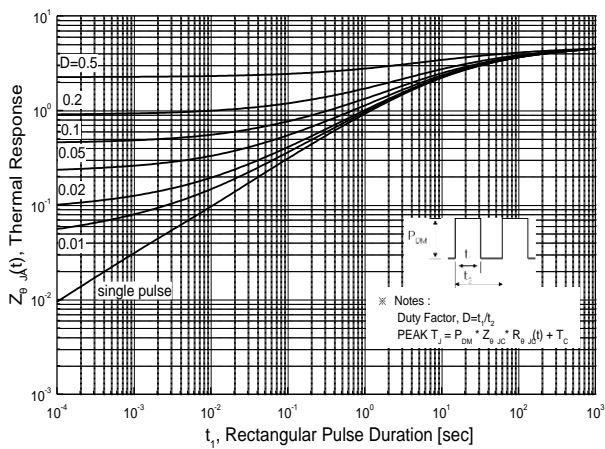
**Fig.8 Capacitance Characteristics**



**Fig.9 Maximum Safe Operating Area**



**Fig.10 Maximum Drain Current Vs. Case Temperature**

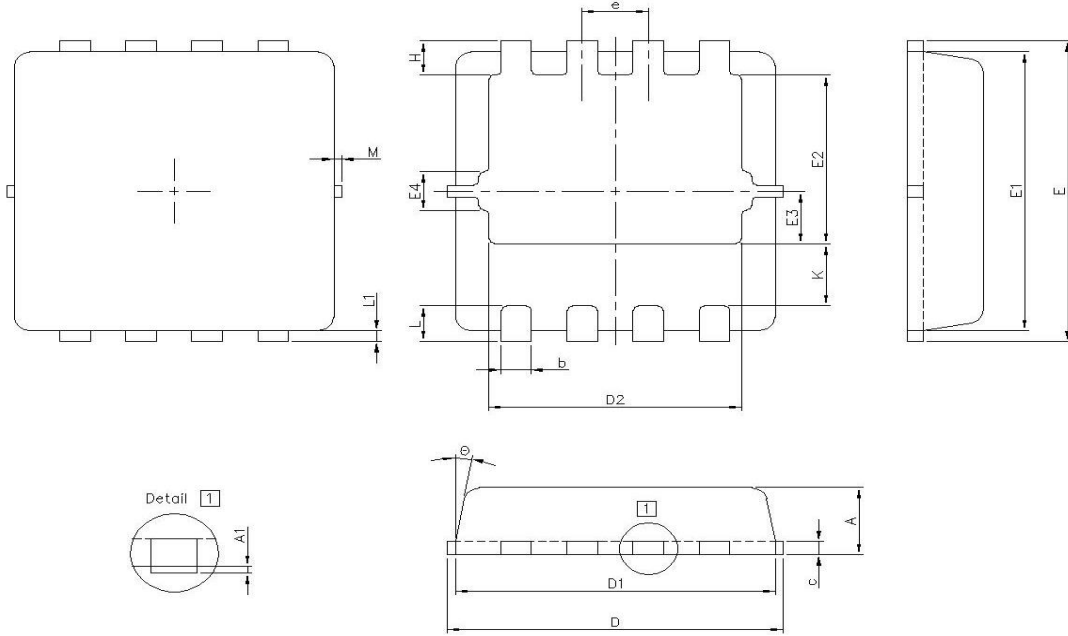


**Fig.11 Transient Thermal Response Curve**

## Package Dimension

### PowerDFN33 (3.3x3.3mm)

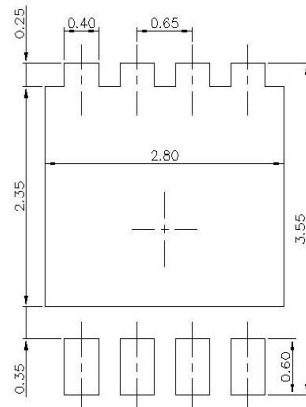
Dimensions are in millimeters, unless otherwise specified



(Unit: mm)

DIM	Min	Max	DIM	Min	Max
A	0.70	0.80	E2	1.78	1.98
A1	0.00	0.05	E3	0.49	0.69
b	0.25	0.35	E4	0.35 TYP.	
c	0.10	0.25	e	0.65 BSC	
D	3.20	3.40	K	0.70 TYP.	
D1	3.00	3.20	L	0.30	0.50
D2	2.39	2.59	L1	0.13 TYP.	
E	3.25	3.45	H	0.27	0.47
E1	3.00	3.20	Θ	0	12


Land Pattern  
(Only for Reference)



Note : Package body size, length and width do not include mold flash, protrusions and gate burrs.

**DISCLAIMER:**

The Products are not designed for use in hostile environments, including, without limitation, aircraft, nuclear power generation, medical appliances, and devices or systems in which malfunction of any Product can reasonably be expected to result in a personal injury. Seller's customers using or selling Seller's products for use in such applications do so at their own risk and agree to fully defend and indemnify Seller.

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