



# PJM40H10NTC

## N-Channel Enhancement Mode Power MOSFET

### Features

- Fast switching
- Low gate charge and reverse transfer capacitances
- $V_{DS} = 400V, I_D = 10A$   
 $R_{DS(on)} < 0.5\Omega @ V_{GS} = 10V$

TO-263

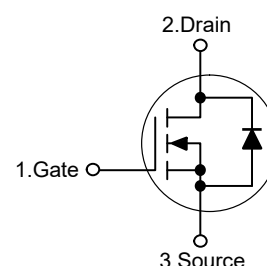


1. Gate 2.Drain 3.Source

### Applications

- Power switch circuit of adaptor and charger

### Schematic Diagram



### Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	400	V
Gate-Source Voltage	$V_{GS}$	$\pm 30$	V
Drain Current-Continuous	$I_D$	10	A
Drain Current-Pulsed <sup>Note1</sup>	$I_{DM}$	40	A
Single pulse avalanche energy <sup>Note4</sup>	$E_{AS}$	650	mJ
Avalanche energy, Repetitive <sup>Note1</sup>	$E_{AR}$	66	mJ
Avalanche Current <sup>Note1</sup>	$I_{AR}$	3.6	A
Maximum Power Dissipation	$P_D$	120	W
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C

### Thermal Characteristics

Thermal Resistance, Junction-to-Ambient <sup>Note2</sup>	$R_{\theta JA}$	62.5	°C/W
Maximum Junction-to-Case <sup>Note2</sup>	$R_{\theta JC}$	1.04	°C/W



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### Electrical Characteristics

(Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	400	--	--	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=400V, V_{GS}=0V$	--	--	1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30V, V_{DS}=0V$	--	--	$\pm 100$	nA
Gate Threshold Voltage <sup>Note3</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	--	4	V
Drain-Source On-Resistance <sup>Note3</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$	--	0.4	0.5	$\Omega$
Forward Transconductance <sup>Note3</sup>	$g_{FS}$	$V_{DS}=15V, I_D=5A$	--	10	--	S
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	--	1254	--	pF
Output Capacitance	$C_{oss}$		--	150	--	pF
Reverse Transfer Capacitance	$C_{rss}$		--	21	--	pF
<b>Switching Characteristics</b>						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=200V, I_D=10A, V_{GS}=10V, R_{GEN}=12\Omega$	--	13	--	nS
Turn-on Rise Time	$t_r$		--	24	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	44	--	nS
Turn-off Fall Time	$t_f$		--	28	--	nS
Total Gate Charge	$Q_g$	$V_{DD}=200V, I_D=10A, V_{GS}=10V$	--	28	--	nC
Gate-Source Charge	$Q_{gs}$		--	7	--	nC
Gate-Drain Charge	$Q_{gd}$		--	11	--	nC
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>Note3</sup>	$V_{SD}$	$V_{GS}=0V, I_S=10A$	--	--	1.5	V
Diode Forward Current <sup>Note2</sup>	$I_S$		--	--	10	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.

3. Pulse Test: Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .

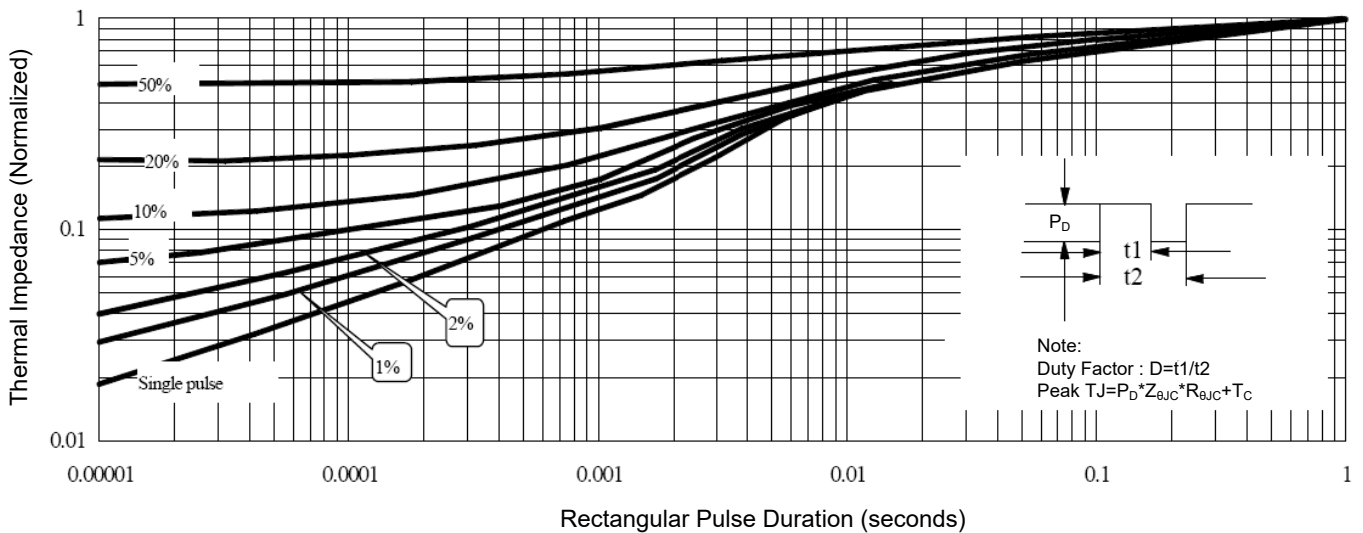
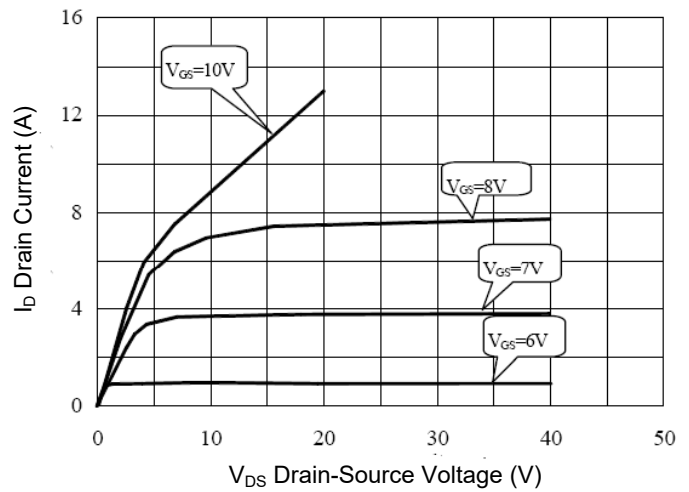
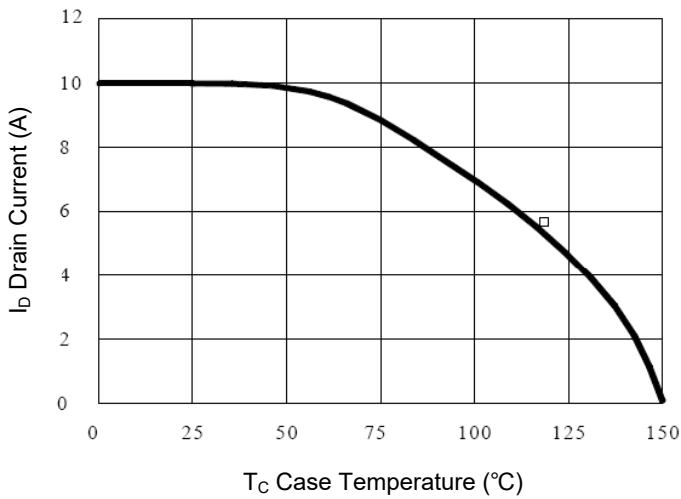
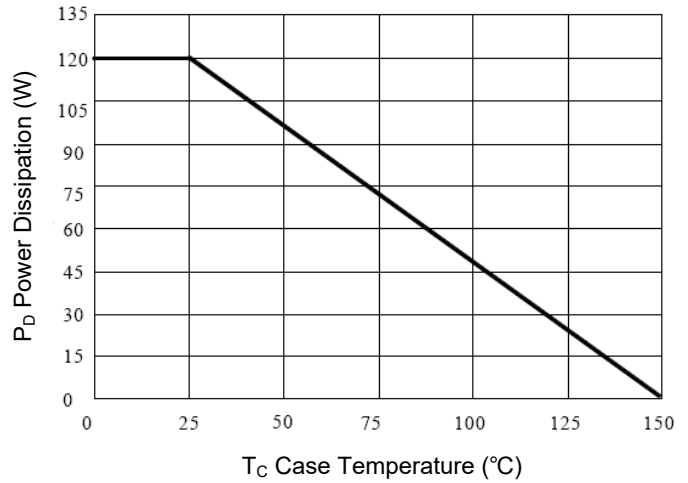
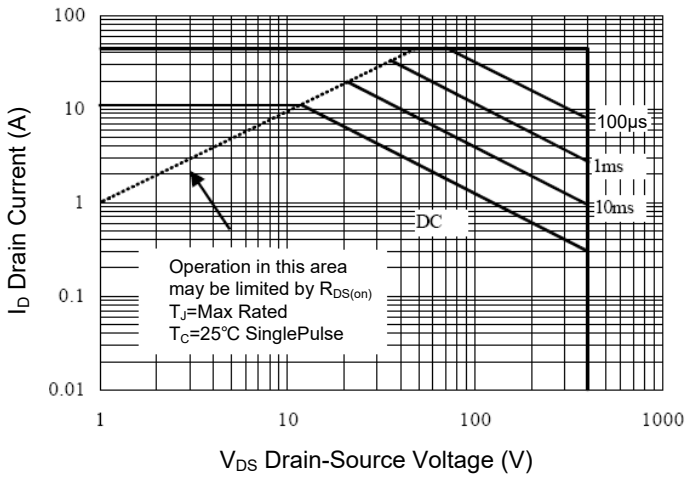
4.  $E_{AS}$  is tested at starting  $T_j=25^\circ C, I_D=11.4A, L=10mH$ .



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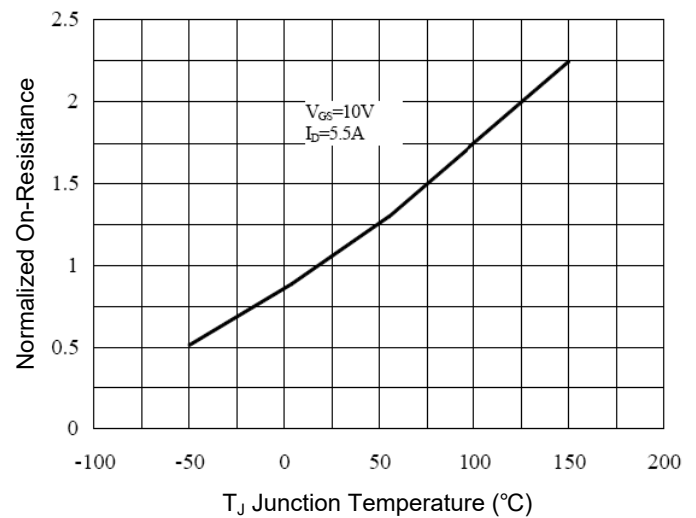
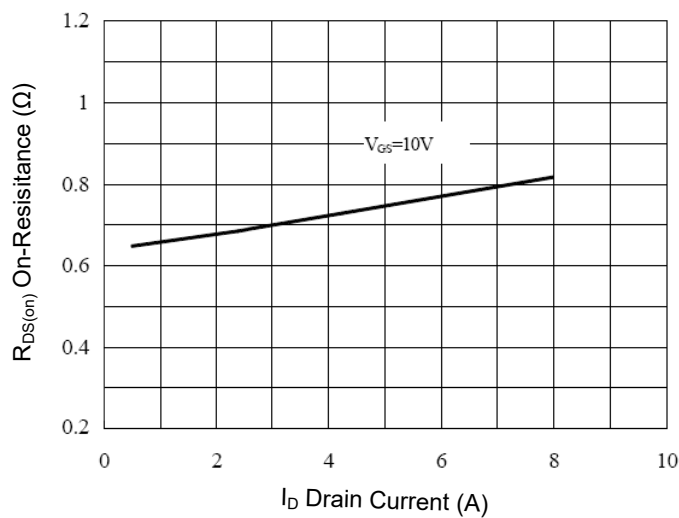
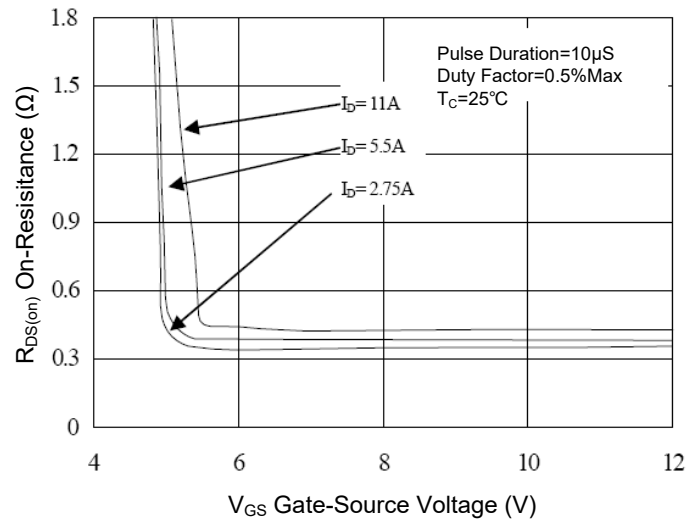
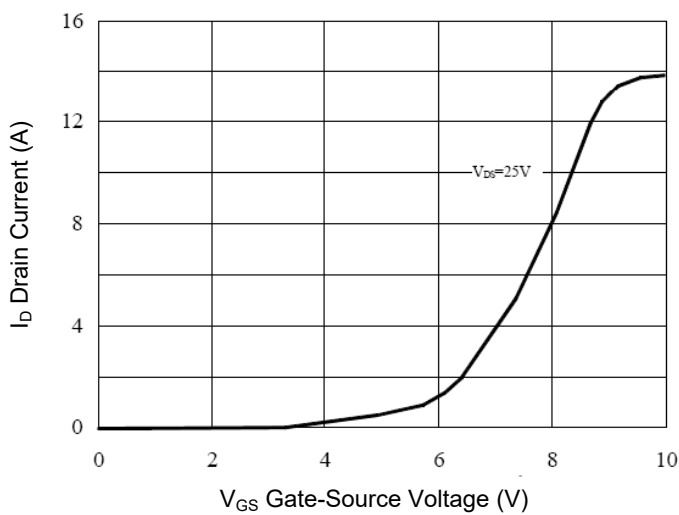
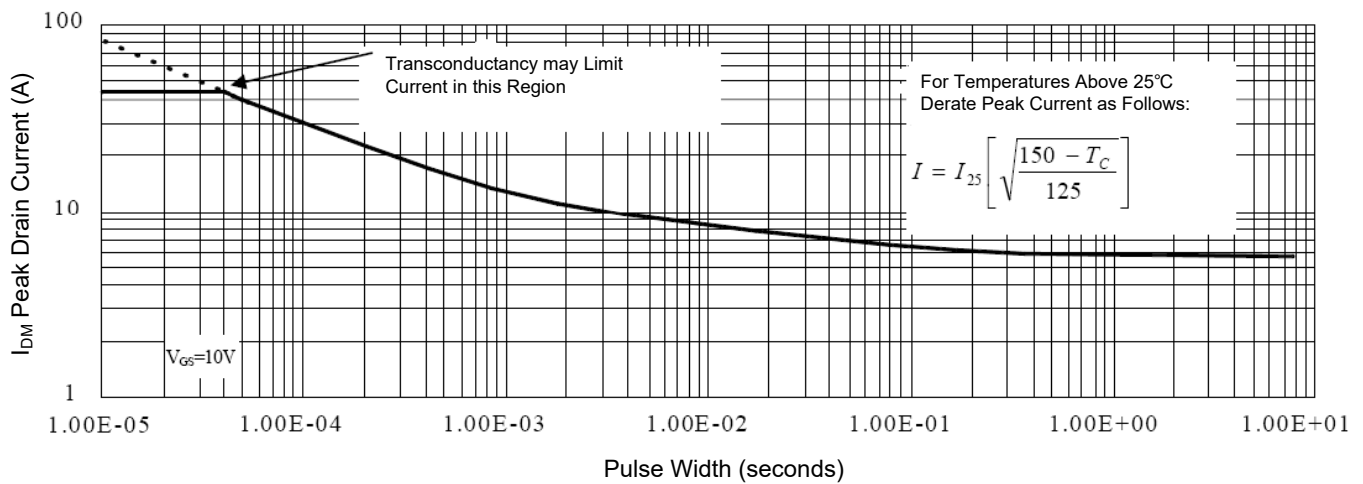
### Typical Characteristic Curves





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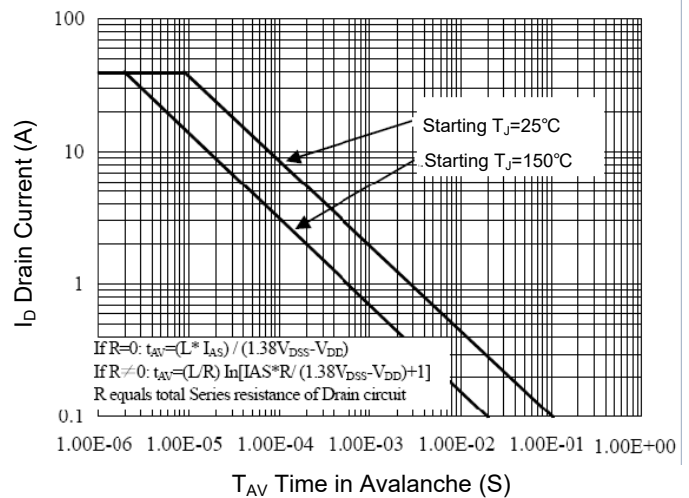
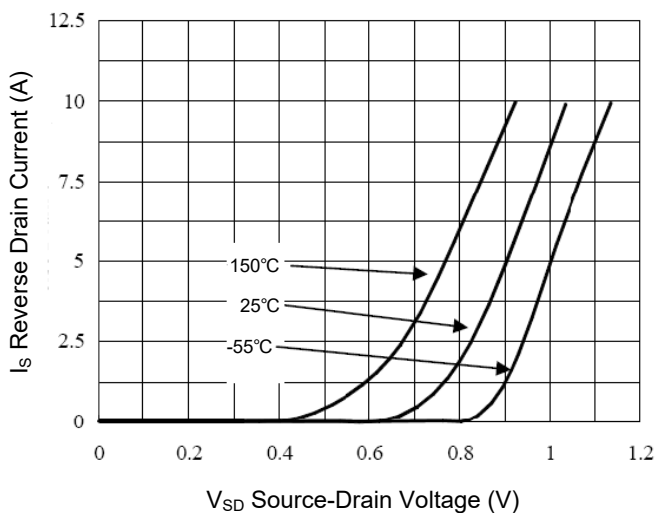
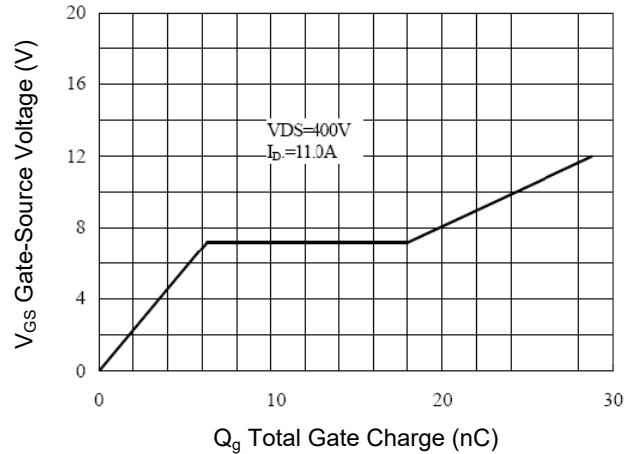
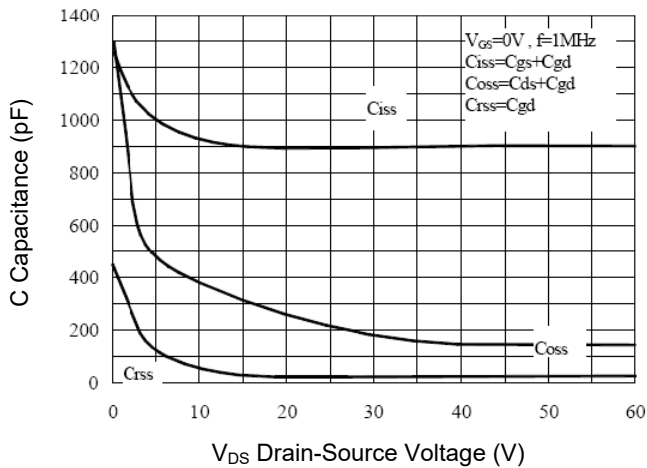
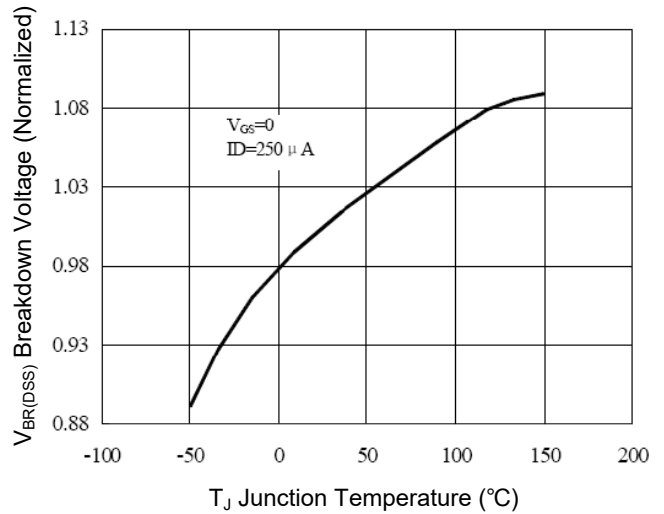
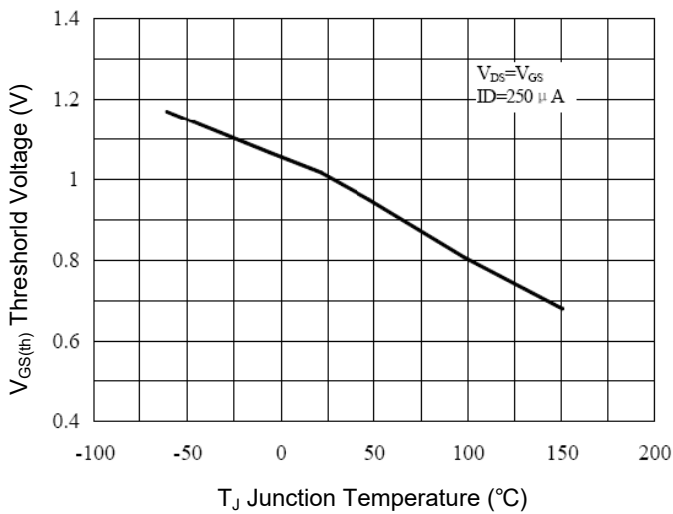
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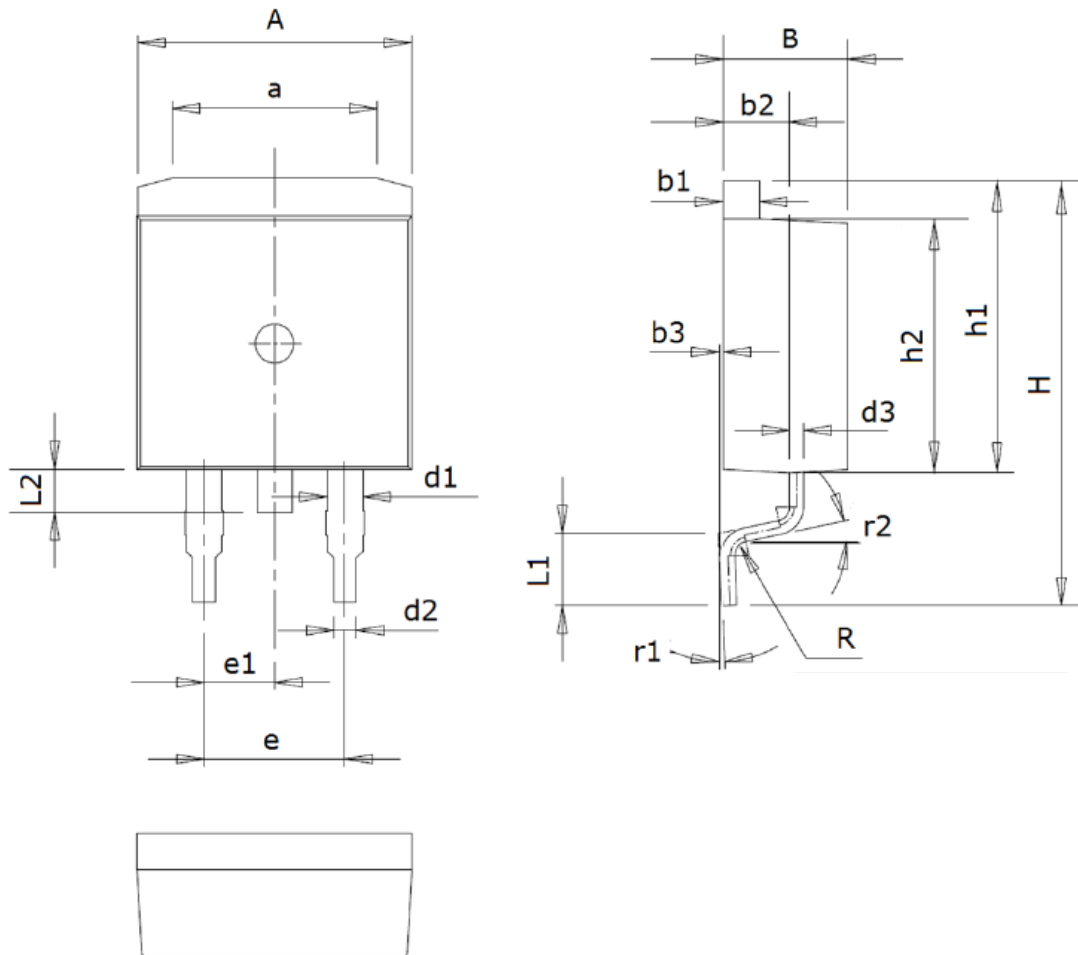
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### Package Outline

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Dimensions in mm



Symbol	Dimensions (mm)	Symbol	Dimensions (mm)	Symbol	Dimensions (mm)
A	9.6~10.0	d2	0.7~0.9	L1	2.4~2.9
a	7.0~7.8	d3	0.4~0.6	L2	1.3~1.8
B	4.3~4.7	e	5.08 (typ)	R	0.5(typ)
b1	1.25~1.35	e1	2.54 (typ)	r1	0~8°
b2	2.2~2.6	H	15.2~15.8	r2	12° (typ)
b3	0~0.2	h1	10.3~10.7		
d1	1.2~1.4	h2	9.1~9.4		