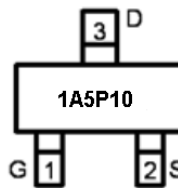
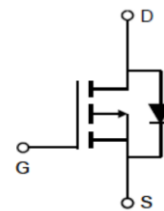


**Main Product Characteristics:**

$V_{DSS}$	-100V
$R_{DS(on)}$	1.29 $\Omega$ (Typ.)
$I_D$	-0.7A ①


**SOT23-3**

**Marking and pin Assignment**

**Schematic diagram**
**Features and Benefits:**

- Advanced MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


**Description:**

It utilizes the latest processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications.

**Absolute max Rating: @ $T_A=25^\circ\text{C}$  unless otherwise specified**

Symbol	Parameter	Max.	Units
$I_D$ @ $T_C = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS}$ @ 10V ①	-0.7	A
$I_{DM}$	Pulsed Drain Current ②	-2.8	
$P_D$ @ $T_C = 25^\circ\text{C}$	Power Dissipation ③	1.2	W
$V_{DS}$	Drain-Source Voltage	-100	V
$V_{GS}$	Gate-to-Source Voltage	$\pm 20$	V
$T_J$ $T_{STG}$	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

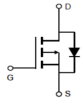
## Thermal Resistance

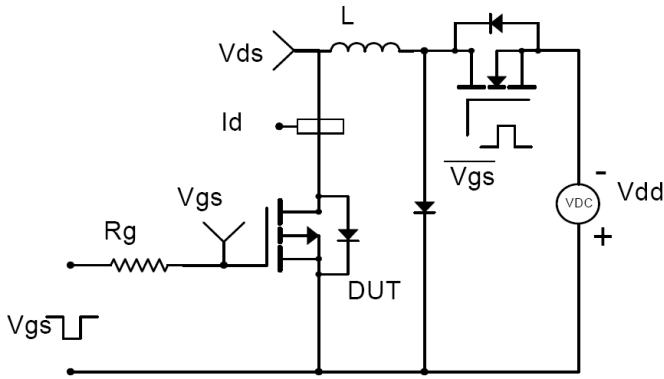
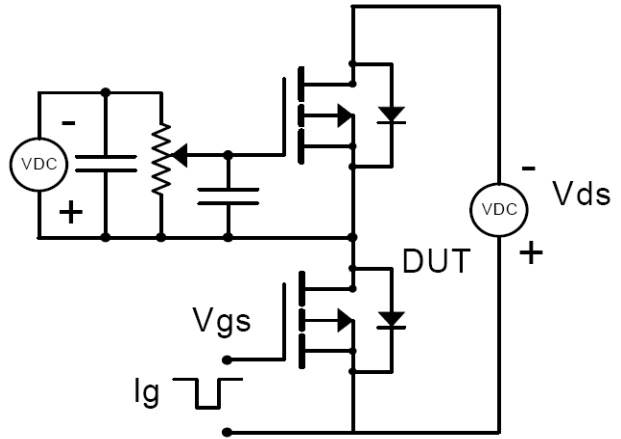
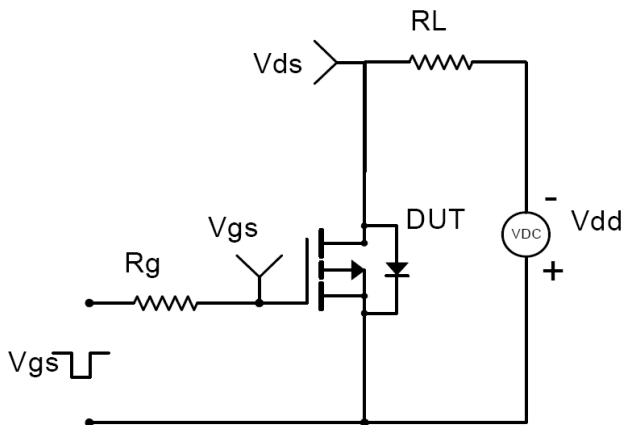
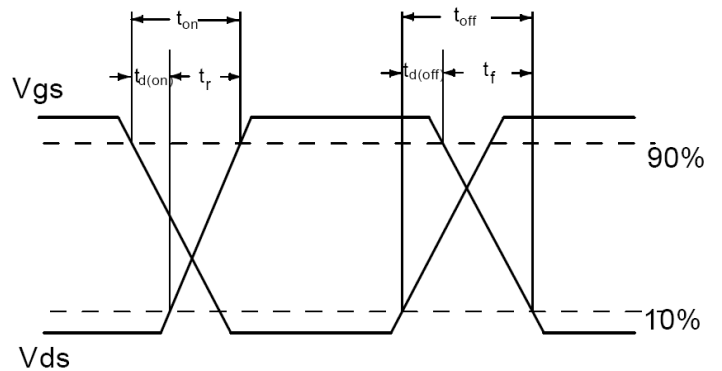
Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-ambient ( $t \leq 10s$ ) ④	—	125	$^{\circ}C /W$

## Electrical Characterizes @ $T_A=25^{\circ}C$ unless otherwise specified

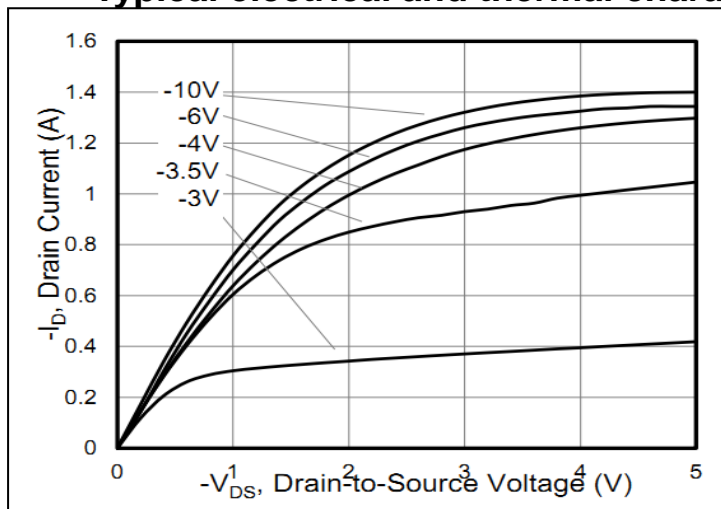
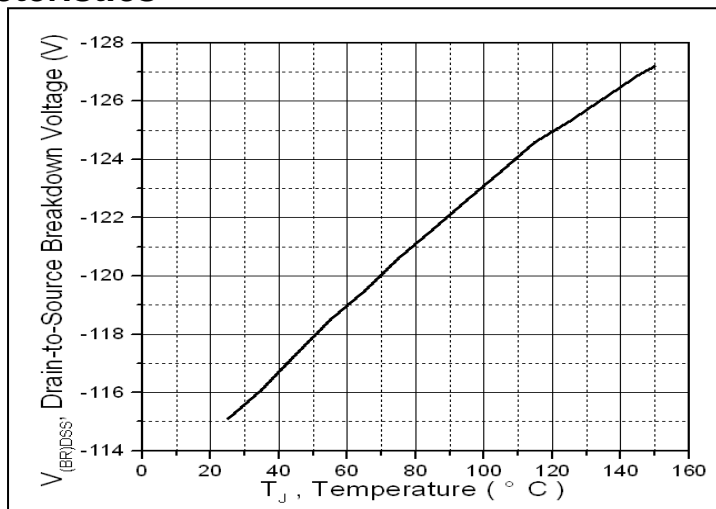
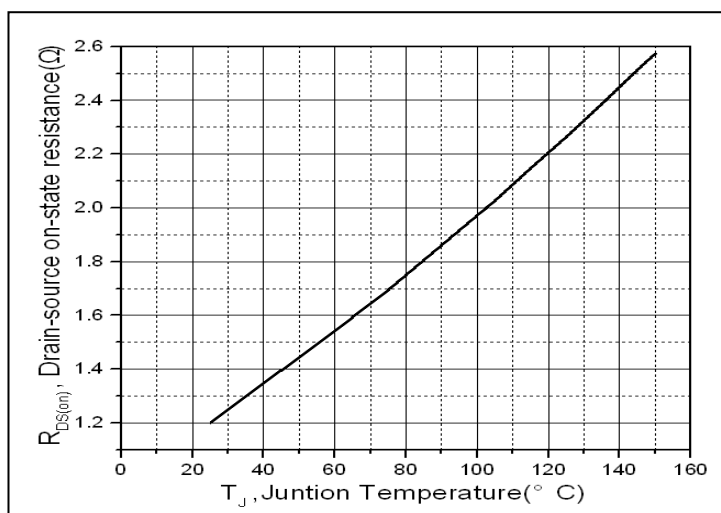
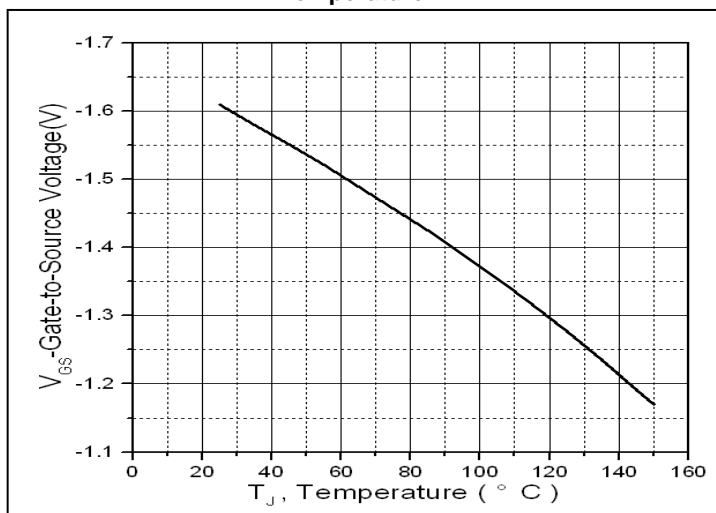
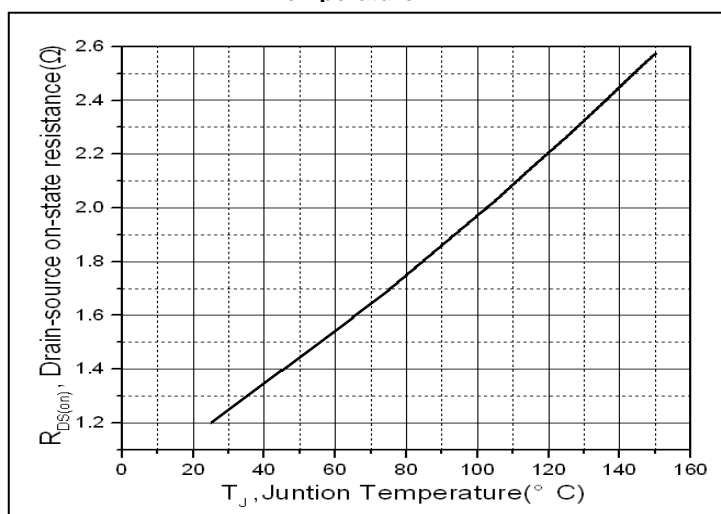
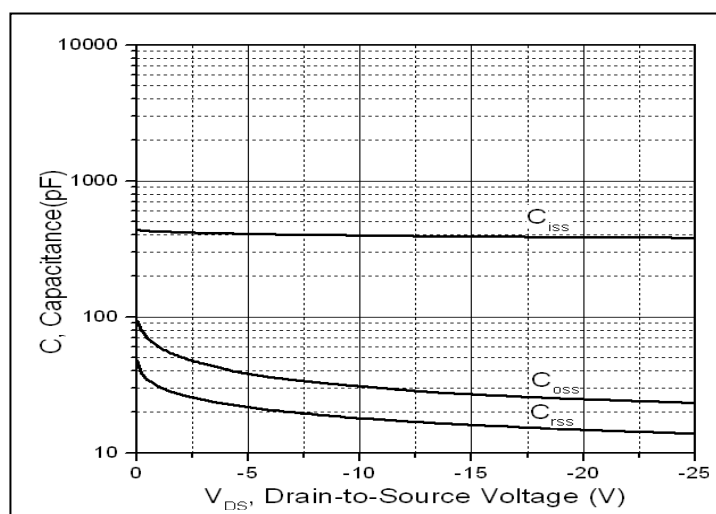
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	-100	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	1.23	1.54	$\Omega$	$V_{GS} = -10V, I_D = -1A$
		—	1.33	1.66		$V_{GS} = -4.5V, I_D = -1A$
$V_{GS(th)}$	Gate threshold voltage	-1.0	—	-2.4	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
$I_{DSS}$	Drain-to-Source leakage current	—	—	-1	$\mu A$	$V_{DS} = -100V, V_{GS} = 0V$
$I_{GSS}$	Gate-to-Source forward leakage	—	—	100	nA	$V_{GS} = 20V$
		—	—	-100		$V_{GS} = -20V$
$Q_g$	Total gate charge	—	25	—	nC	$I_D = -1A,$ $V_{DS} = -80V,$ $V_{GS} = -10V$
$Q_{gs}$	Gate-to-Source charge	—	3	—		
$Q_{gd}$	Gate-to-Drain("Miller") charge	—	7	—		
$t_{d(on)}$	Turn-on delay time	—	7.2	—	ns	$V_{GS} = -10V, V_{DS} = -100V,$ $R_{GEN} = 2.2\Omega$
$t_r$	Rise time	—	20.4	—		
$t_{d(off)}$	Turn-Off delay time	—	7.6	—		
$t_f$	Fall time	—	6.8	—		
$C_{iss}$	Input capacitance	—	382	—	pF	$V_{GS} = 0V,$ $V_{DS} = -25V,$ $f = 1MHz$
$C_{oss}$	Output capacitance	—	23	—		
$C_{rss}$	Reverse transfer capacitance	—	14	—		

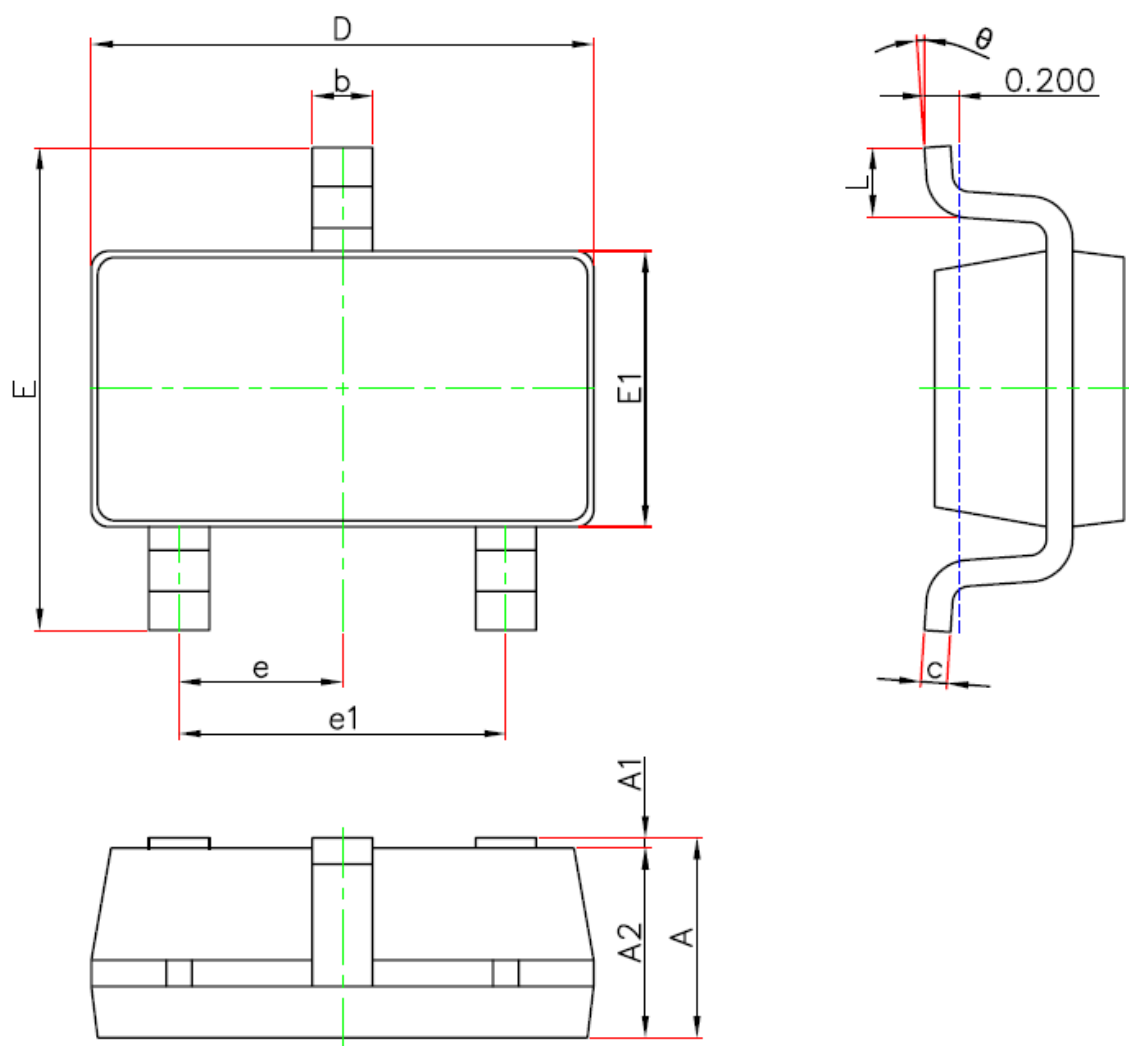
## Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$I_S$	Continuous Source Current (Body Diode) ①	—	—	-0.7	A	MOSFET symbol showing the integral reverse p-n junction diode. 
$I_{SM}$	Pulsed Source Current (Body Diode)	—	—	-2.8	A	
$V_{SD}$	Diode Forward Voltage	—	-0.88	-1.2	V	

**Test circuits and Waveforms**
**EAS test circuit:**

**Gate charge test circuit:**

**Switching time test circuit:**

**Switch Waveforms:**

**Notes:**

- ① Calculated continuous current based on maximum allowable junction temperature.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.
- ④ The value of  $R_{\theta JA}$  is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ\text{C}$

**Typical electrical and thermal characteristics**

**Figure 1: Typical Output Characteristics**

**Figure 2: Drain-to-Source Breakdown Voltage vs. Temperature**

**Figure 3: Normalized On-Resistance Vs. Case Temperature**

**Figure 4: Gate to source cut-off voltage**

**Figure 5: Normalized On-Resistance Vs. Case Temperature**

**Figure 6: Typical Capacitance Vs. Drain-to-Source Voltage**

**Mechanical Data:**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
$\theta$	0°	8°	0°	8°

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