

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
100V	89mΩ@10V	3A
	115mΩ@4.5V	

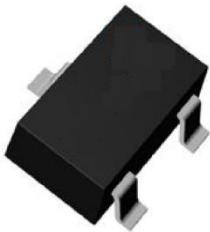
### Feature

- Excellent  $R_{DS(ON)}$
- Low gate charge

### Application

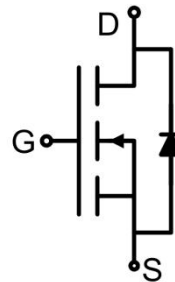
- Load switch
- PWM application
- Power management

### Package

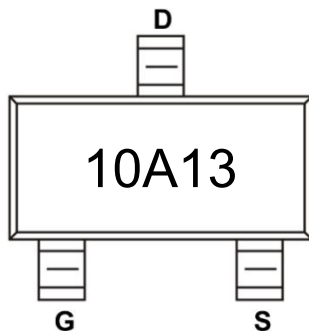


SOT-23

### Circuit diagram



### Marking



### Absolute maximum ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	3	A
Continuous Drain Current ( $T_A=100^{\circ}\text{C}$ )	$I_D(100^{\circ}\text{C})$	2	A
Power Dissipation	$P_D$	1.3	W
Thermal Resistance Junction to Ambient <sup>1)</sup>	$R_{\theta JA}$	96	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	$T_J$	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

### Electrical characteristics ( $T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	100			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 80\text{V}, V_{GS} = 0\text{V}$			1	$\mu\text{A}$
Gate-body leakage current	$I_{GSS}$	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$			$\pm 100$	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1.3	1.9	2.4	V
Drain-source on-resistance <sup>2)</sup>	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 2\text{A}$		68	89	m $\Omega$
		$V_{GS} = 4.5\text{V}, I_D = 1\text{A}$		88	115	
<b>Dynamic characteristics<sup>3)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 50\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$		197		pF
Output Capacitance	$C_{oss}$			81		
Reverse Transfer Capacitance	$C_{rss}$			8		
Total Gate Charge	$Q_g$	$V_{DS} = 50\text{V}, V_{GS} = 10\text{V}, I_D = 2\text{A}$		4.3		nC
Gate-Source Charge	$Q_{gs}$			1		
Gate-Drain Charge	$Q_{gd}$			0.8		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 50\text{V}, V_{GS} = 10\text{V}, I_D = 2\text{A}$ $R_G = 3\Omega$		3.1		nS
Turn-on rise time	$t_r$			6.2		
Turn-off delay time	$t_{d(off)}$			8.1		
Turn-off fall time	$t_f$			4		
<b>Source-Drain Diode characteristics</b>						
Diode Forward Current	$I_S$				3	A
Diode Forward voltage	$V_{SD}$	$V_{GS} = 0\text{V}, I_S = 2\text{A}$			1.2	V
Reverse Recovery Time	$T_{rr}$	$I_F = 2\text{A}, di/dt = -100\text{A}/\mu\text{s}$		28		nS
Reverse Recovery Charge	$Q_{rr}$			14		nC

Notes:

- $R_{\theta JA}$  is measured with the device mounted on a 1inch<sup>2</sup> pad of 2oz copper FR4 PCB.
- Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 0.5\%$ .
- Guaranteed by design, not subject to production testing.

## Typical Characteristics

Figure 1: Power De-rating

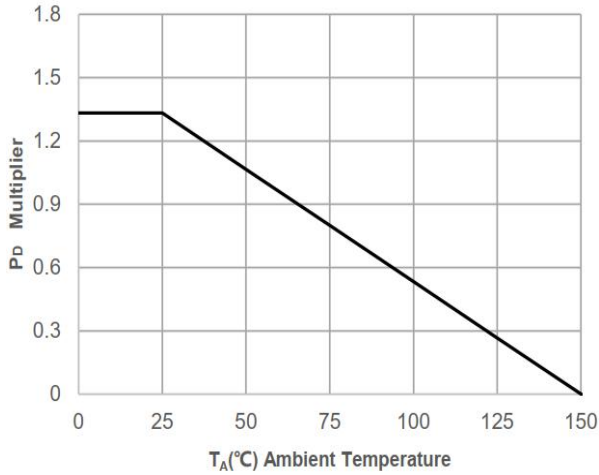


Figure 2: Current De-rating

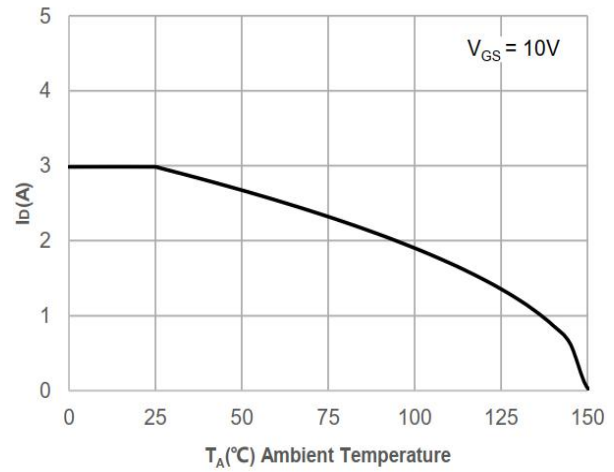


Figure 3: Normalized Maximum Transient Thermal Impedance

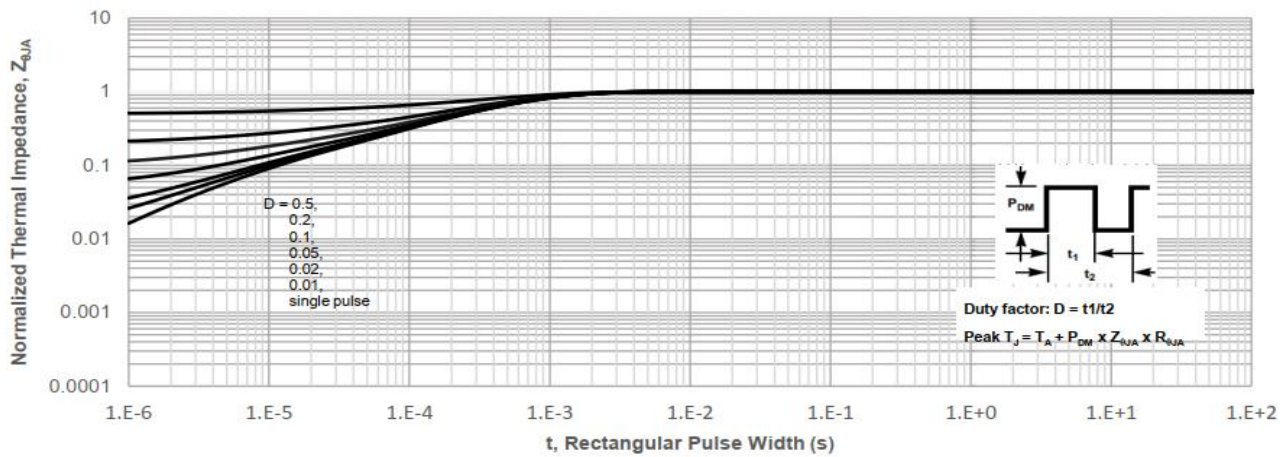
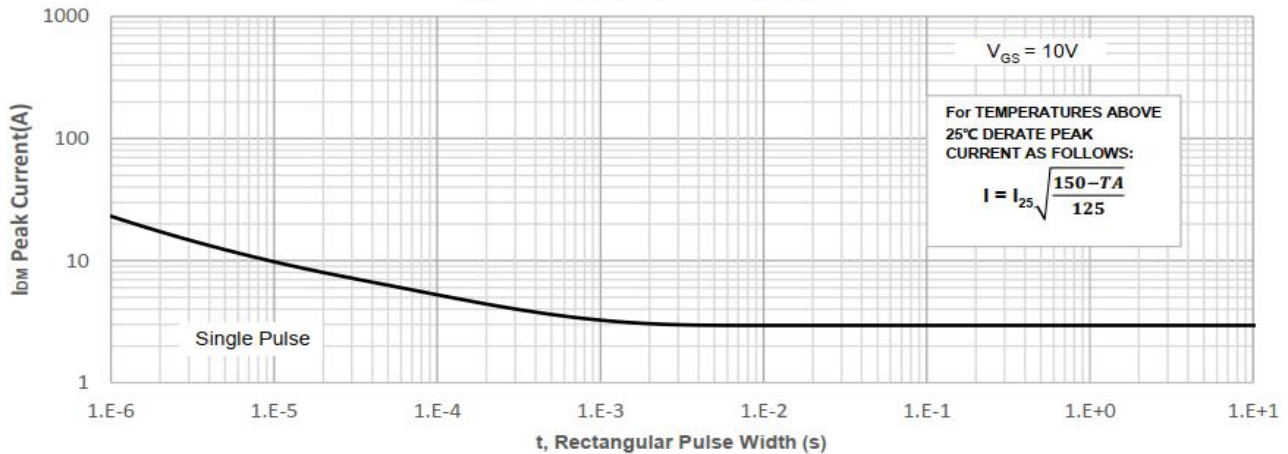


Figure 4: Peak Current Capacity



## Typical Characteristics

Figure 5: Output Characteristics

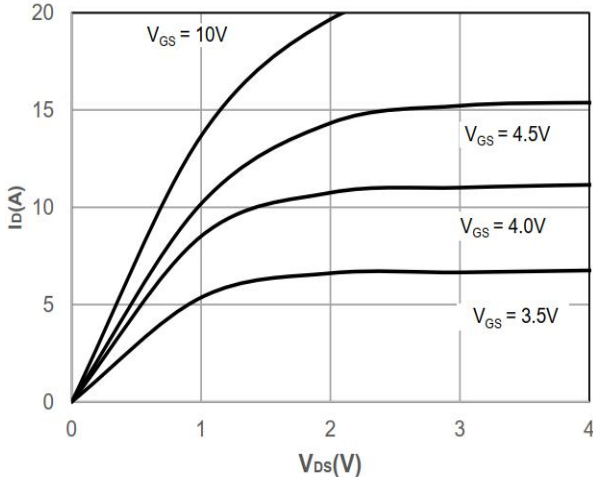


Figure 6: Typical Transfer Characteristics

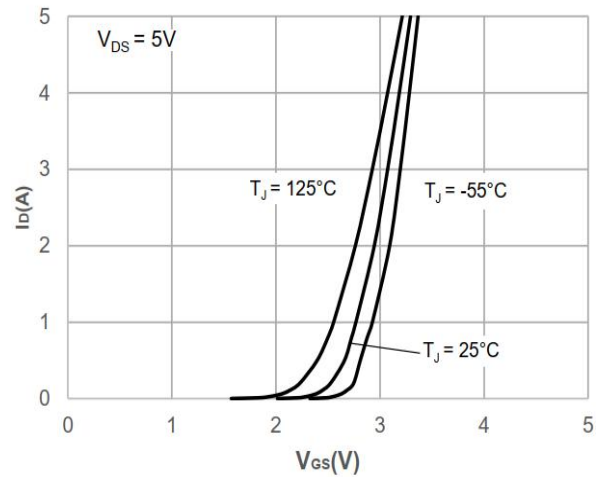


Figure 7: On-resistance vs. Drain Current

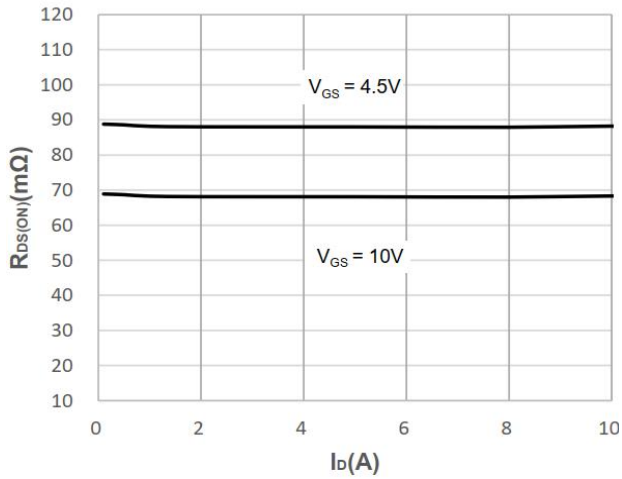


Figure 8: Body Diode Characteristics

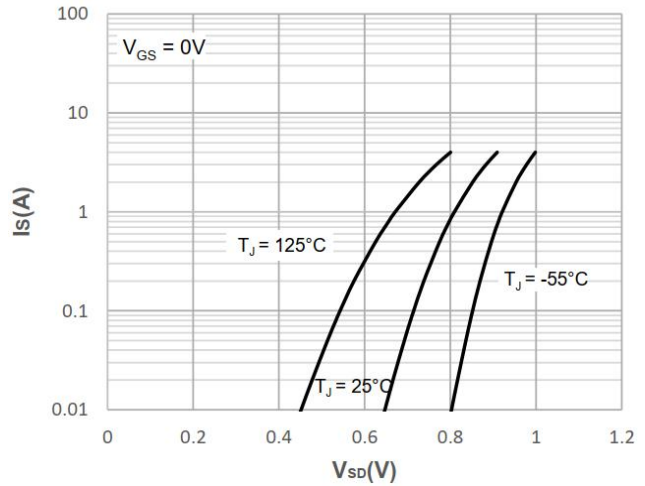


Figure 9: Gate Charge Characteristics

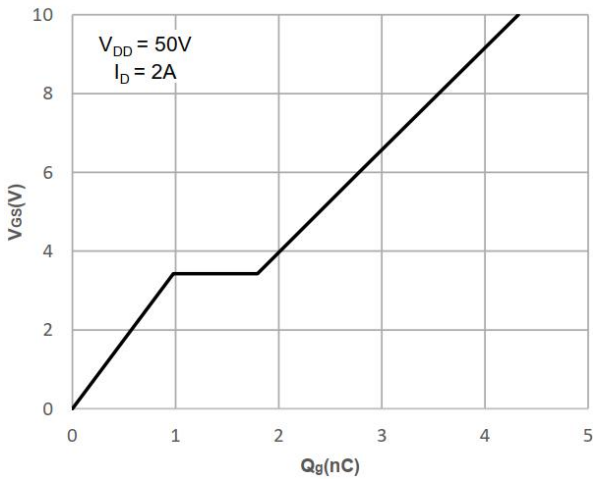
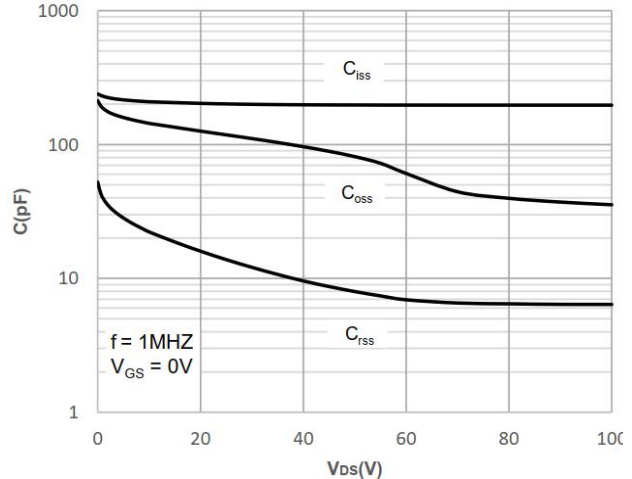


Figure 10: Capacitance Characteristics



## Typical Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

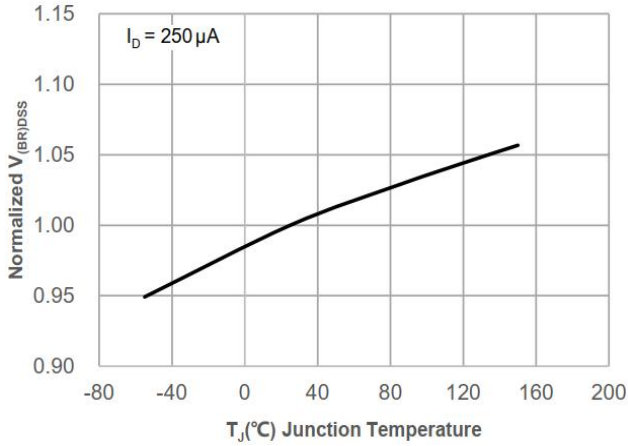


Figure 12: Normalized on Resistance vs. Junction Temperature

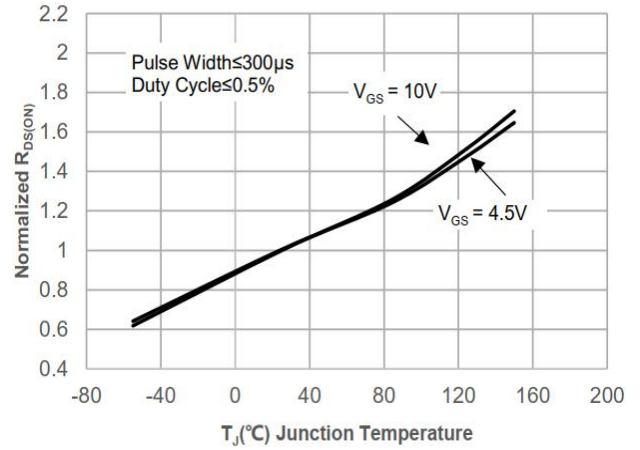


Figure 13: Normalized Threshold Voltage vs. Junction Temperature

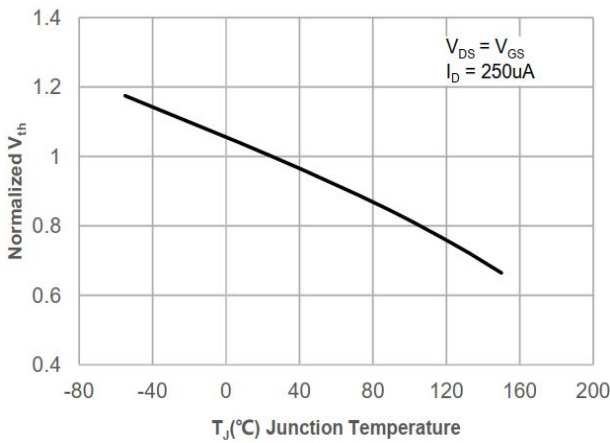


Figure 14:  $R_{DS(ON)}$  vs.  $V_{GS}$

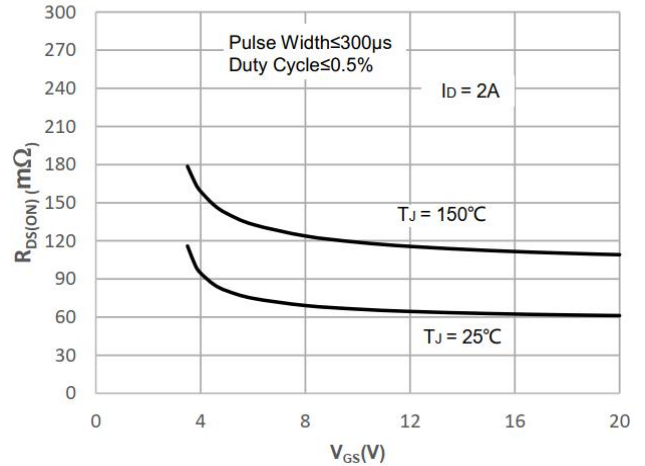
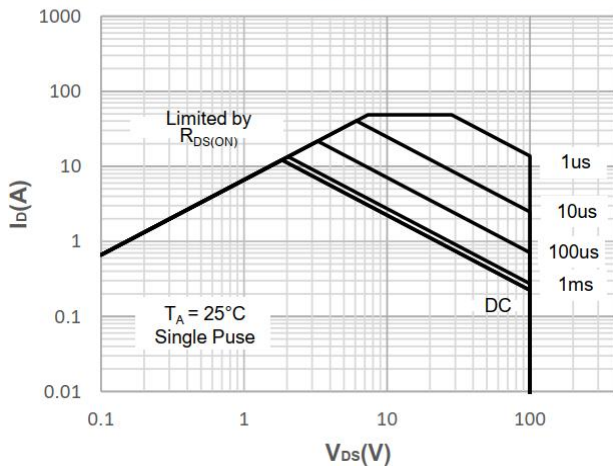
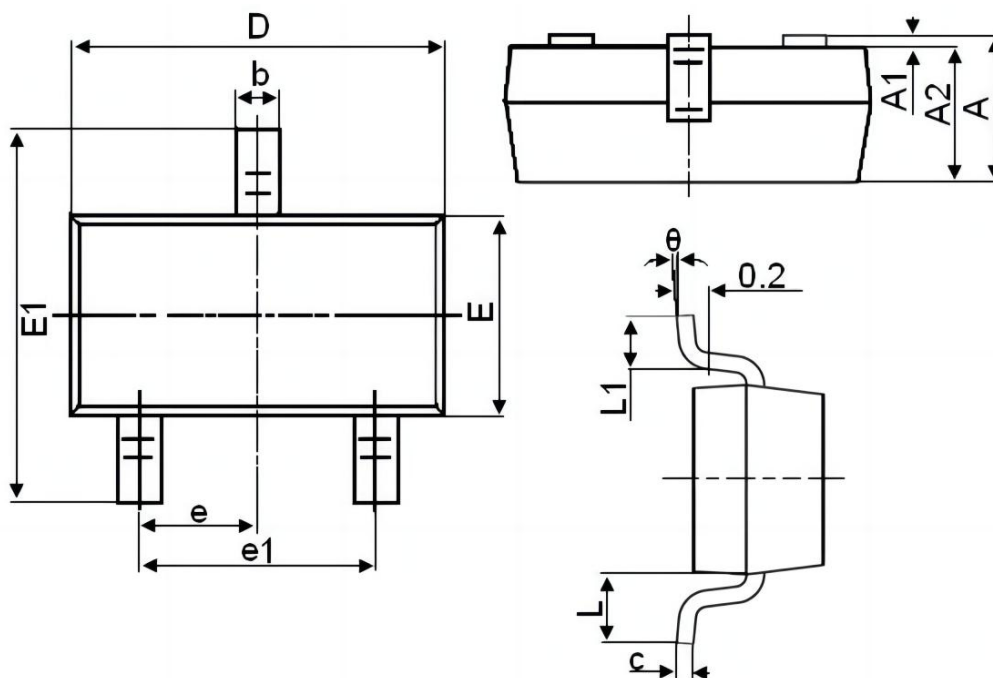


Figure 15: Maximum Safe Operating Area



### SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.200	0.035	0.047
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.043
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.300	2.500	0.091	0.098
e	0.950 BSC.		0.037 BSC.	
e1	1.900 REF.		0.075 REF.	
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	10°	0°	10°