

N-Channel MOSFET

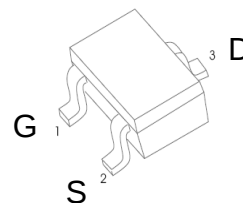
FEATURE

- High-Side Switching
- Low On-Resistance
- Low Threshold
- Fast Switching Speed

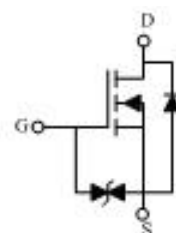
APPLICATION

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers

MARKING : 34K



SOT-323



$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	380 mΩ@4.5V	0.75A
	450 mΩ@2.5V	
	800 mΩ@1.8V	

Maximum ratings ($T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DSS}	20	V
Typical Gate-Source Voltage	V_{GS}	±12	
Drain Current-Continuous	I_D	0.75	A
Drain Current -Pulsed(note1)	I_{DM}	3	
Power Dissipation (note 2)	P_D	200	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	$^{\circ}C/W$
Storage Temperature	T_j	150	$^{\circ}C$
Junction Temperature	T_{stg}	-55 ~+150	

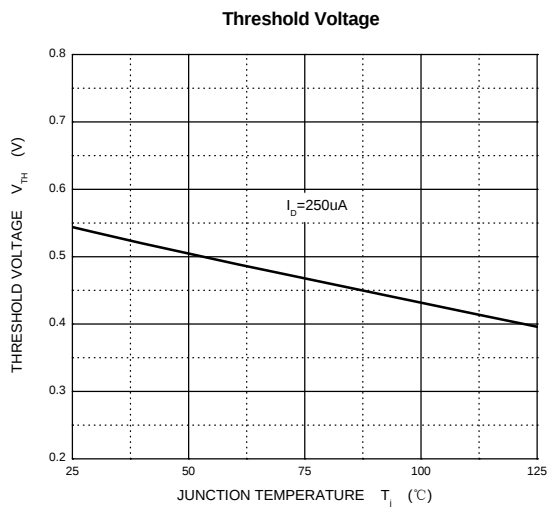
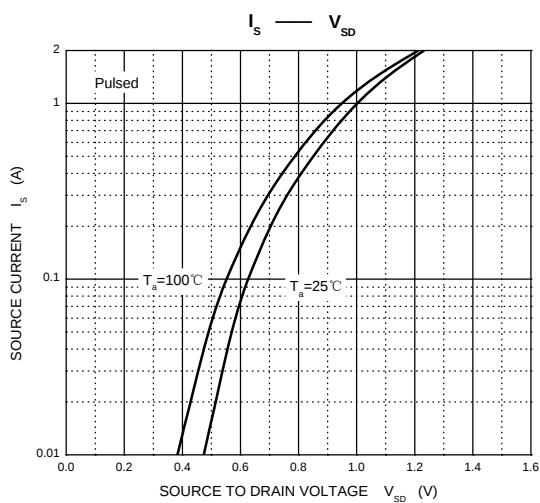
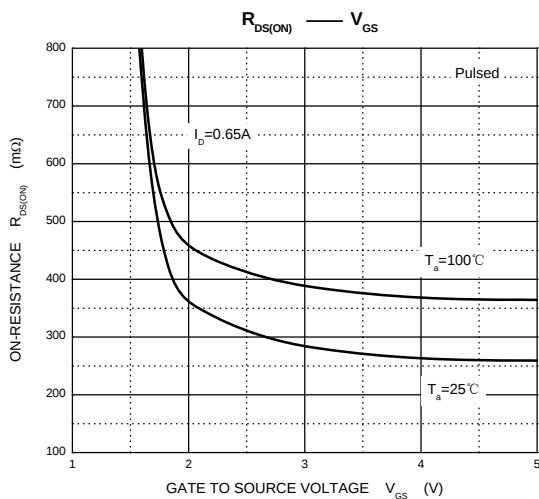
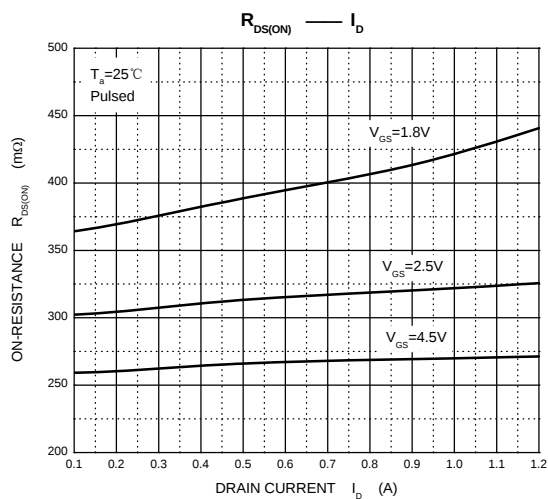
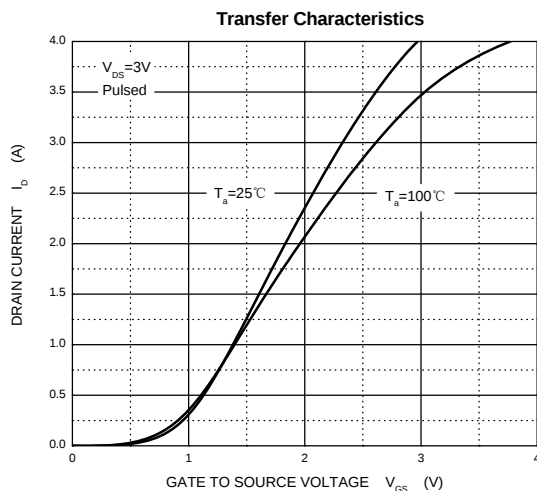
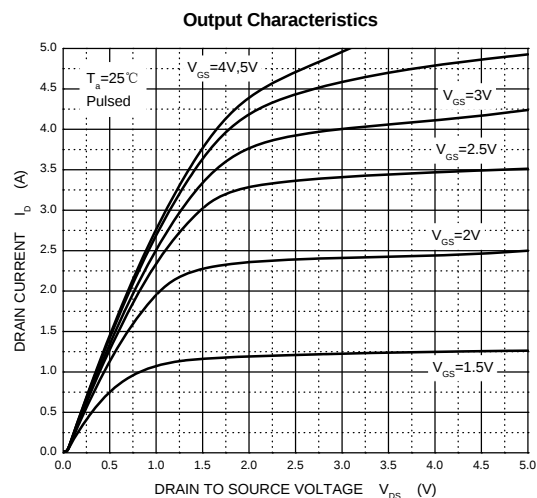
$T_a=25^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
On/Off States						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate-Threshold Voltage(note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.35		1.1	
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 10V$			± 20	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Drain-Source On-State Resistance(note 3)	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 650mA$			380	m Ω
		$V_{GS} = 2.5V, I_D = 550mA$			450	
		$V_{GS} = 1.8V, I_D = 450mA$			800	
Forward Transconductance	g_{FS}	$V_{DS} = 10V, I_D = 800mA$	1			S
Dynamic Characteristics(note 4)						
Input Capacitance	C_{iss}	$V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$			120	pF
Output Capacitance	C_{oss}				20	
Reverse Transfer Capacitance	C_{rss}				15	
Switching Times (note 4)						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10V, I_D = 500mA,$ $V_{GS} = 4.5V, R_G = 10\Omega$		6.7		ns
Rise Time	t_r			4.8		
Turn-Off Delay Time	$t_{d(off)}$			17.3		
Fall Time	t_f			7.4		
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage (note 3)	V_{SD}	$I_S = 0.15A, V_{GS} = 0V$			1.2	V

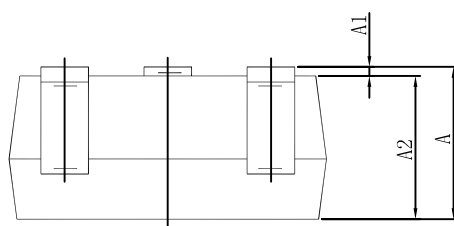
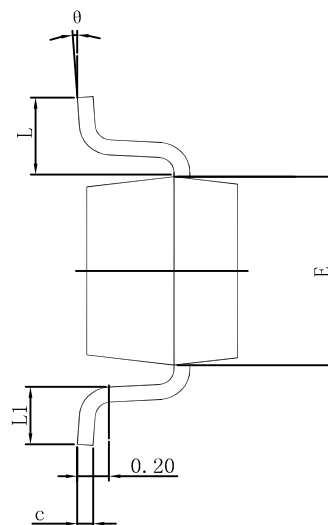
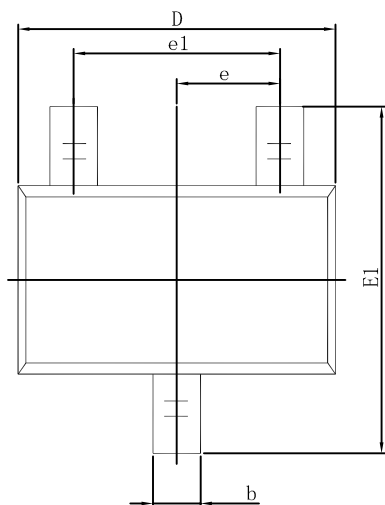
Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at $T_a=25^{\circ}\text{C}$.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.
4. These parameters have no way to verify.

Typical Characteristics



SOT-323 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°