

60V N-Channel MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	5Ω@10V	340mA
	5.3Ω@4.5V	

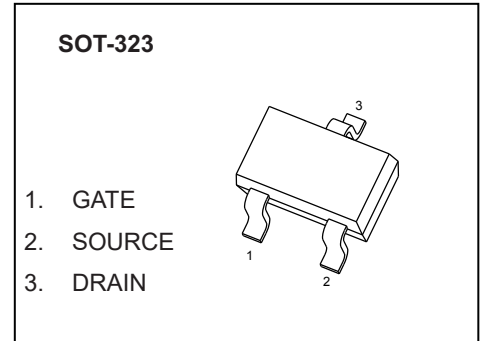
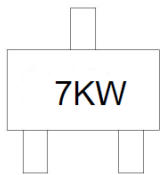
Feature

- High density cell design for Low $R_{DS(on)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD protected Gate HBM 2KV

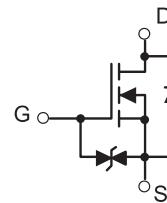
Application

- Load Switch for Portable Devices
- DC/DC Converter

MARKING:



Equivalent Circuit



ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	340	mA
Power Dissipation ⁽¹⁾	P_D	150	mW
Thermal Resistance from Junction to Ambient ⁽¹⁾	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 48V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±10	μA
Gate threshold voltage*	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.4	2.5	V
Drain-source on-resistance*	R _{DS(on)}	V _{GS} = 4.5V, I _D = 200mA		1.4	5.3	Ω
		V _{GS} = 10V, I _D = 500mA		1.3	5	
Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 300mA			1.5	V
Recovered charge	Q _r	V _{GS} = 0V, I _S = 300mA, V _R = 25V, di _s /dt = -100A/μs		30		nC
Dynamic characteristics**						
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz			40	pF
Output Capacitance	C _{oss}				30	
Reverse Transfer Capacitance	C _{rss}				10	
Switching Characteristics**						
Turn-on delay time	t _{d(on)}	V _{GS} = 10V, V _{DD} = 50V, R _G = 50Ω,			10	ns
Turn-off delay time	t _{d(off)}	R _G = 50Ω, R _L = 250Ω			15	
Reverse recovery Time	t _f	V _{GS} = 0V, I _S = 300mA, V _R = 25V, di _s /dt = -100A/μs		30		
GATE-SOURCE ZENER DIODE						
Gate-Source Breakdown Voltage	BV _{GSO}	I _{gs} = ±1mA (Open Drain)	±21.5		±30	V

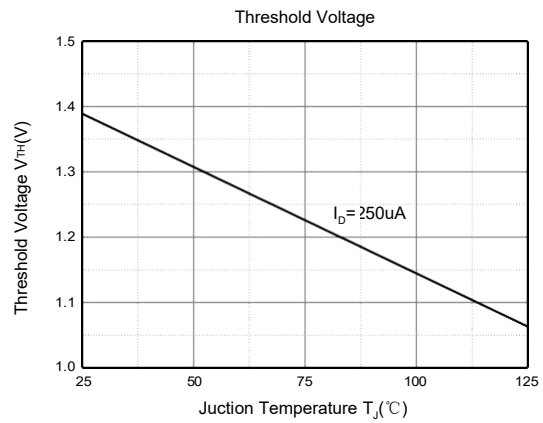
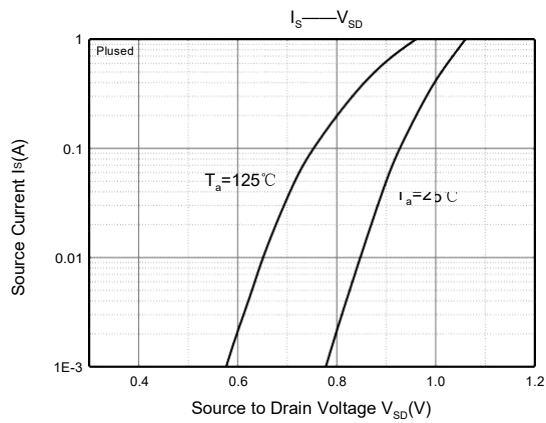
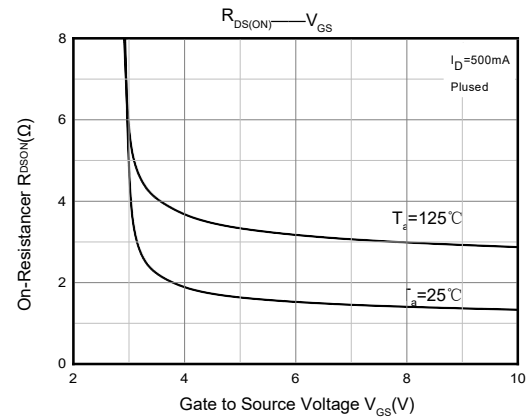
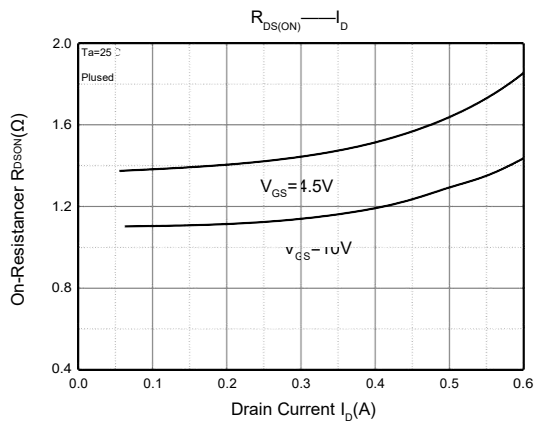
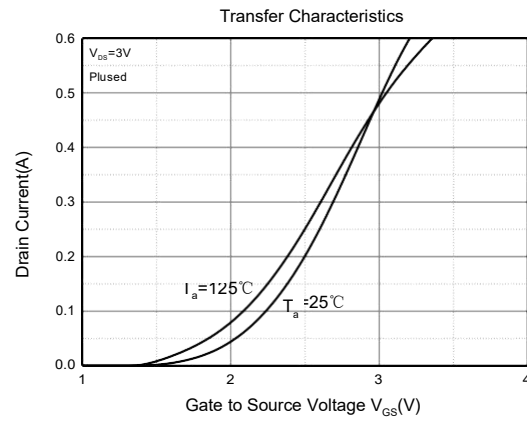
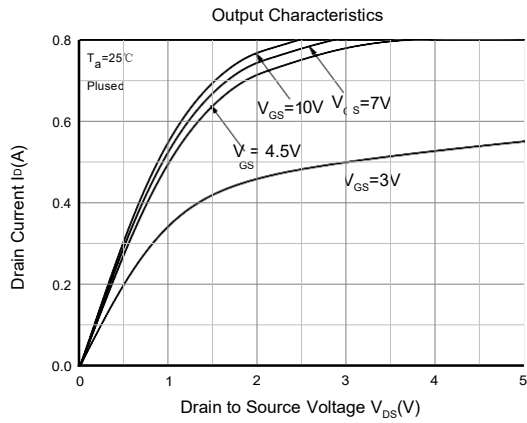
Notes:

*Pulse Test : Pulse Width ≤300μs, Duty Cycle ≤2%.

**These parameters have no way to verify.

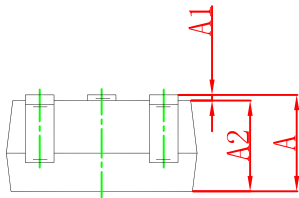
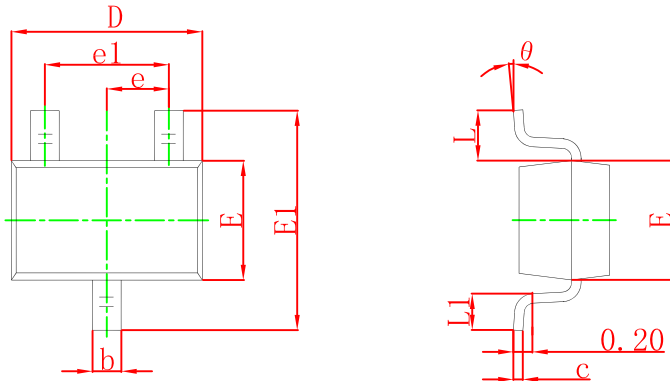


Typical Electrical and Thermal Characteristic



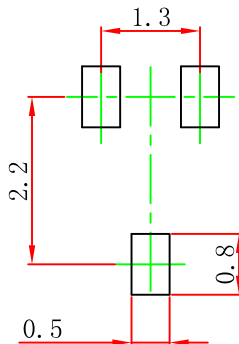


SOT-323 Package Outline Dimensions



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
theta	0°	8°	0°	8°

SOT-323 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.