

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	44mΩ@10V	5A
	49mΩ@4.5V	

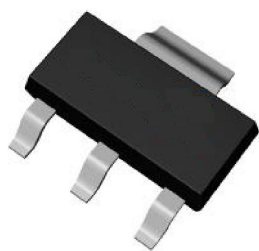
Feature

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- Trench power MV MOSFET technology
- High speed switching

Application

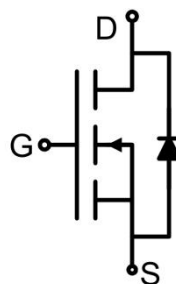
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply
- Battery protection

Package

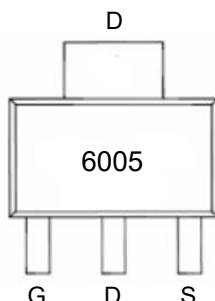


SOT-223

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°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	5	A
Pulsed Drain Current	I _{DM}	24	A
Power Dissipation	P _D	2	W
Thermal Resistance from Junction to Ambient	R _{θJA}	62.5	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	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} = 60V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0		2.5	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = 10V, I _D = 5A		35	44	mΩ
		V _{GS} = 4.5V, I _D = 5A		39	49	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		1018		pF
Output Capacitance	C _{oss}			70		
Reverse Transfer Capacitance	C _{rss}			62		
Total Gate Charge	Q _g	V _{DS} = 30V, V _{GS} = 10V, I _D = 10A		26		nC
Gate-Source Charge	Q _{gs}			5.4		
Gate-Drain Charge	Q _{gd}			6.5		
Turn-on delay time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V, I _D = 2A, R _{GEN} = 3Ω		10		nS
Turn-on rise time	t _r			20		
Turn-off delay time	t _{d(off)}			29		
Turn-off fall time	t _f			21		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				5	A
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = 5A			1.2	V

Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤ 2%.
- 2) Guaranteed by design, not subject to production testing.

Typical Characteristics

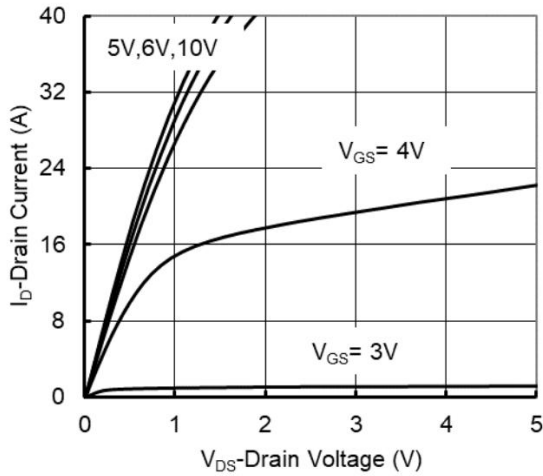


Figure 1. Output Characteristics

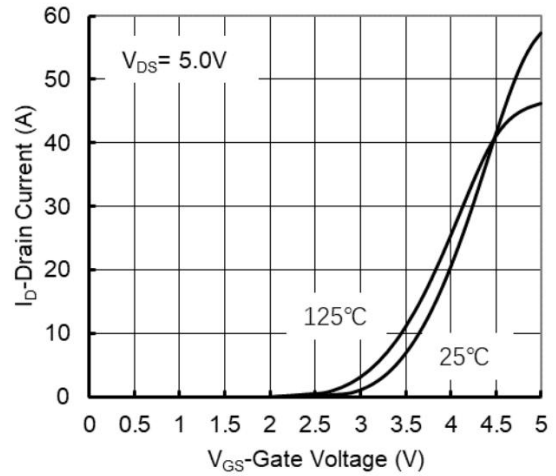


Figure 2. Transfer Characteristics

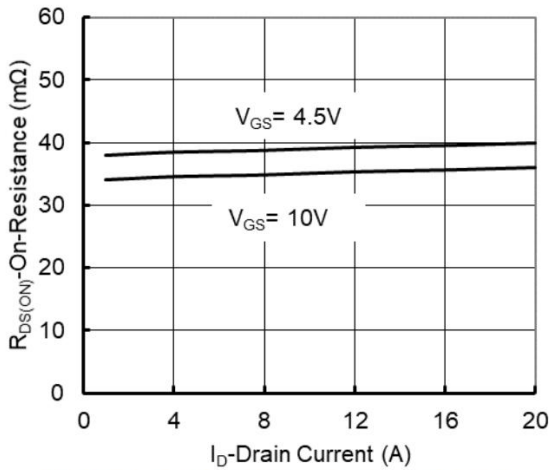


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

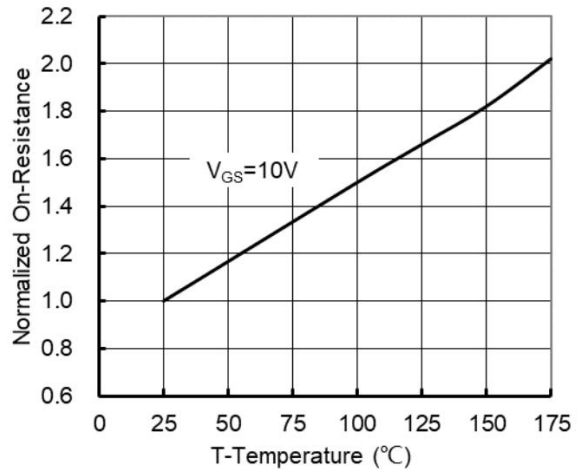


Figure 4. On-Resistance vs. Junction Temperature

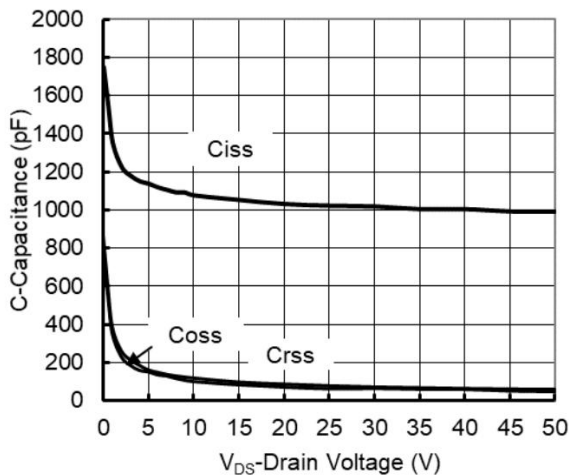


Figure 5. Capacitance Characteristics

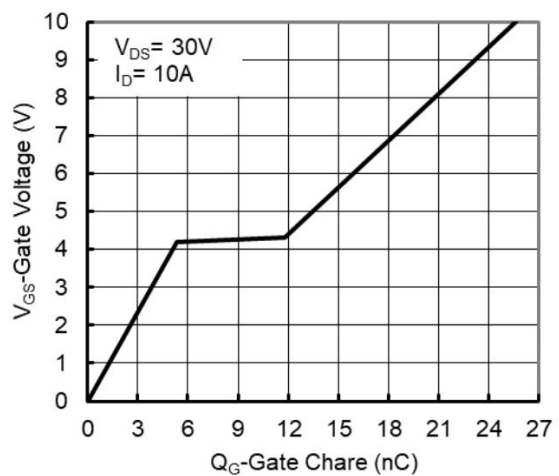


Figure 6. Gate Charge

Typical Characteristics

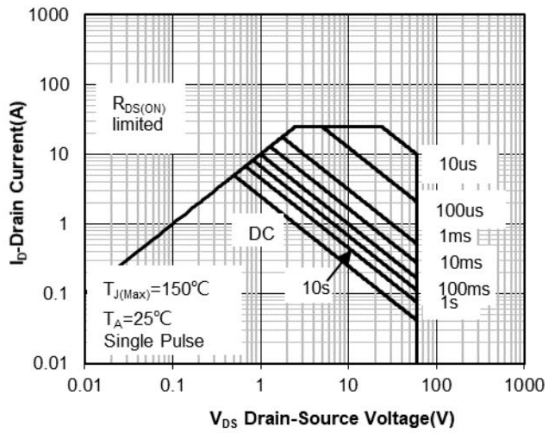


Figure 7. Safe Operation Area

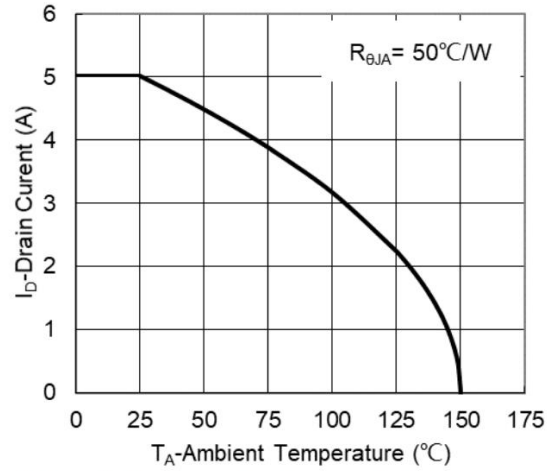


Figure 8. Maximum Continuous Drain Current vs Ambient Temperature

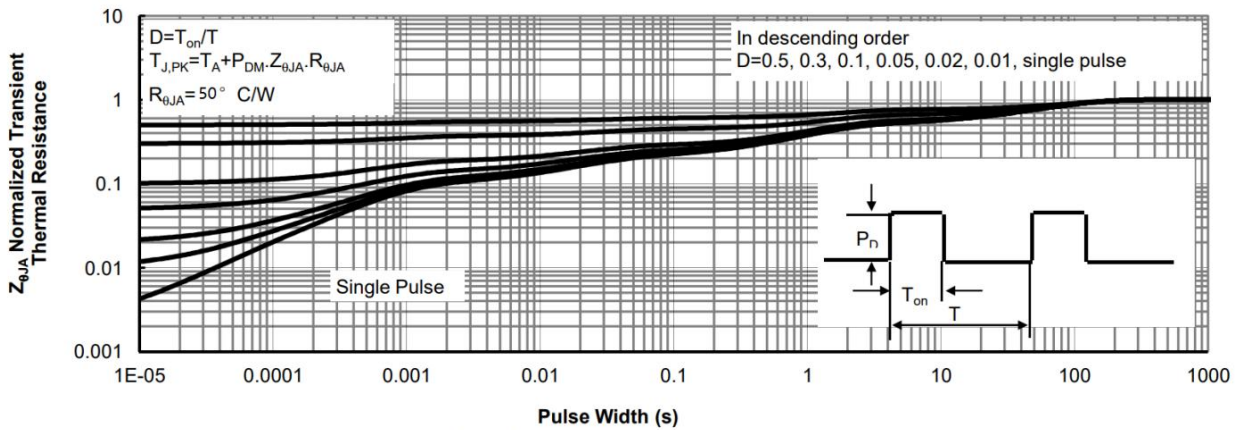
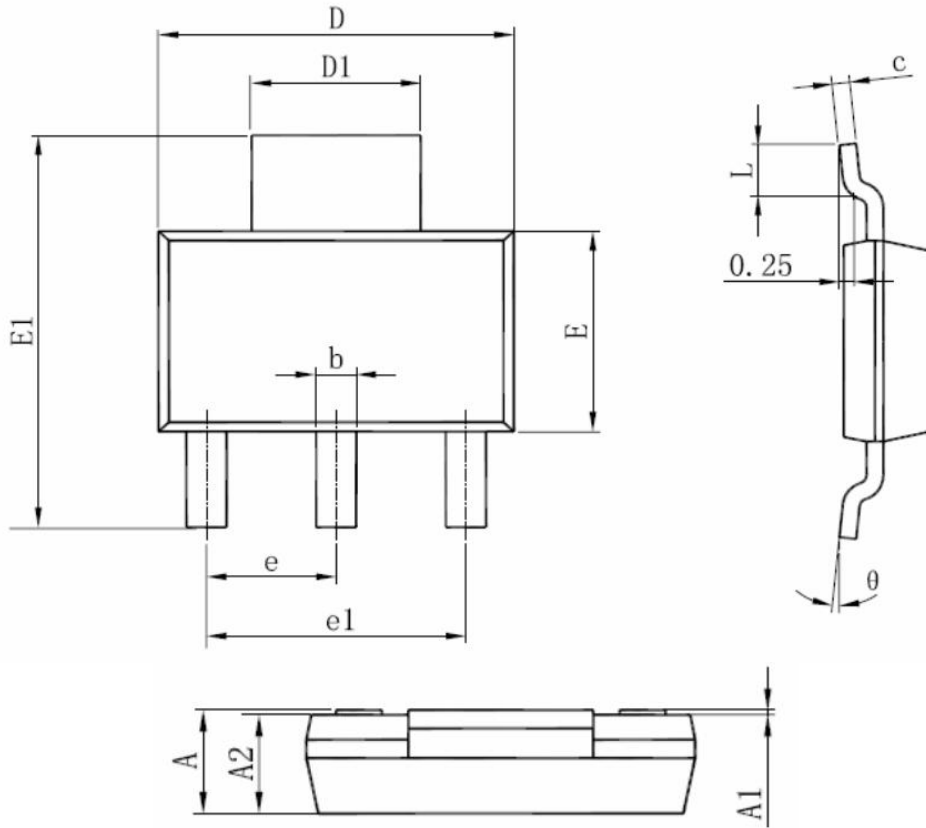


Figure 9. Normalized Maximum Transient Thermal Impedance

SOT-223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300(BSC)		0.091(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°