

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-60V	120mΩ@-10V	-4A
	170mΩ@-4.5V	

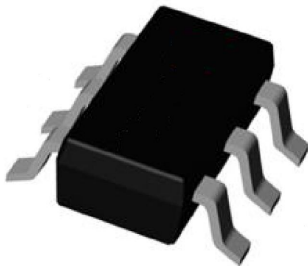
Feature

- High density cell design for ultra low on-resistance
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

Application

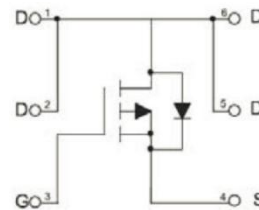
- Load Switch for Portable Devices
- PWM application

Package

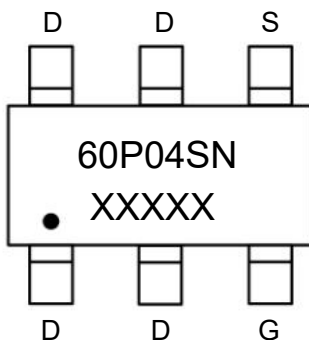


SOT-23-6L

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	-4	A
Pulsed Drain Current	I _{DM}	-12	A
Power Dissipation	P _D	1.5	W
Thermal Resistance from Junction to Ambient	R _{θJA}	83.3	°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 = -4A		106	120	mΩ
		V _{GS} = -4.5V, I _D = -3A		135	170	
Forward transconductance ¹⁾	g _{FS}	V _{DS} = -5V, I _D = -4A		10		S
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = -30V, V _{GS} = 0V, f = 1MHz		930		pF
Output Capacitance	C _{oss}			85		
Reverse Transfer Capacitance	C _{rss}			35		
Total Gate Charge	Q _g	V _{DS} = -30V, V _{GS} = -10V, I _D = -4A		25		nC
Gate-Source Charge	Q _{gs}			3		
Gate-Drain Charge	Q _{gd}			7		
Turn-on delay time	t _{d(on)}	V _{DS} = -30V, V _{GS} = -10V, R _L = 7.5Ω, R _{GEN} = 3Ω		8		nS
Turn-on rise time	t _r			4		
Turn-off delay time	t _{d(off)}			32		
Turn-off fall time	t _f			7		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I _S				-4	A
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = -4A			-1.2	V
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = -4A		25		nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs ¹⁾		31		nC

Notes:

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

Typical Characteristics

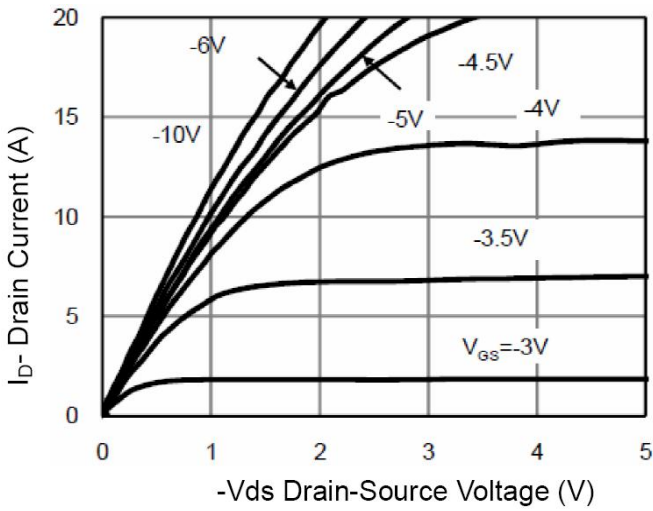


Figure 1 Output Characteristics

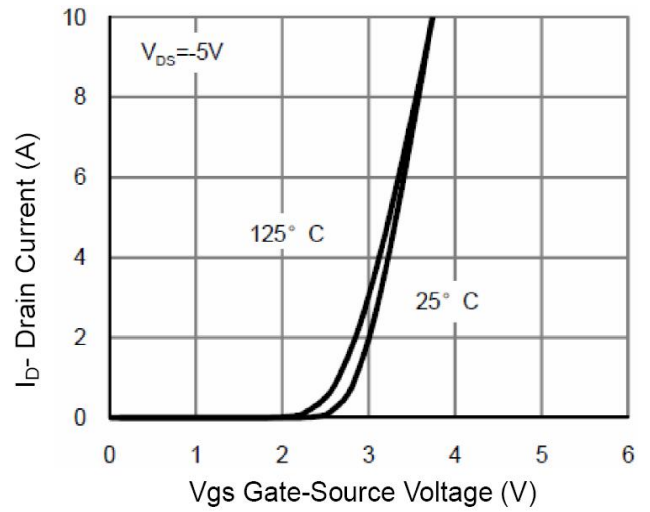


Figure 2 Transfer Characteristics

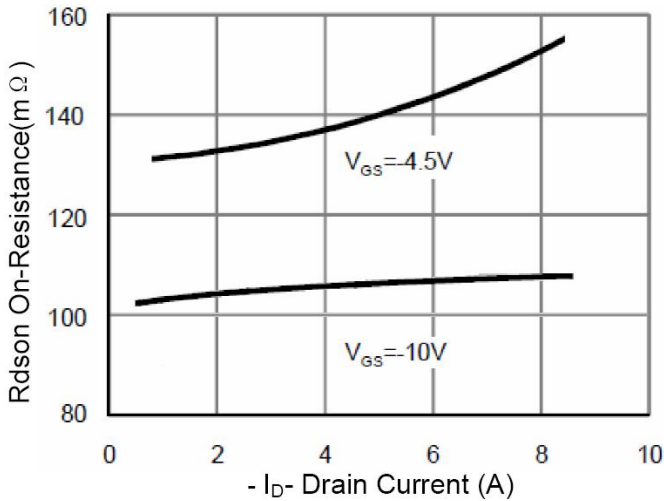


Figure 3 Rdson- Drain Current

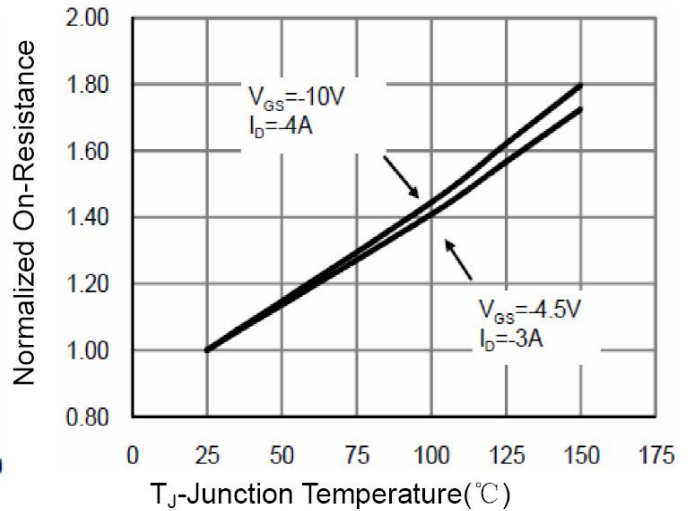


Figure 4 Rdson-Junction Temperature

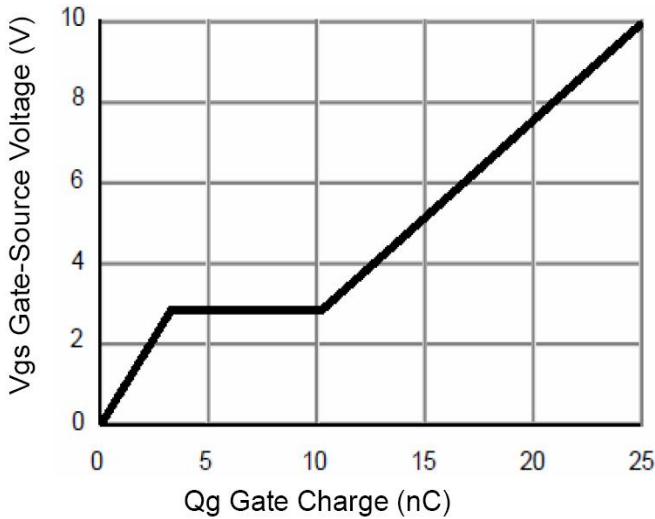


Figure 5 Gate Charge

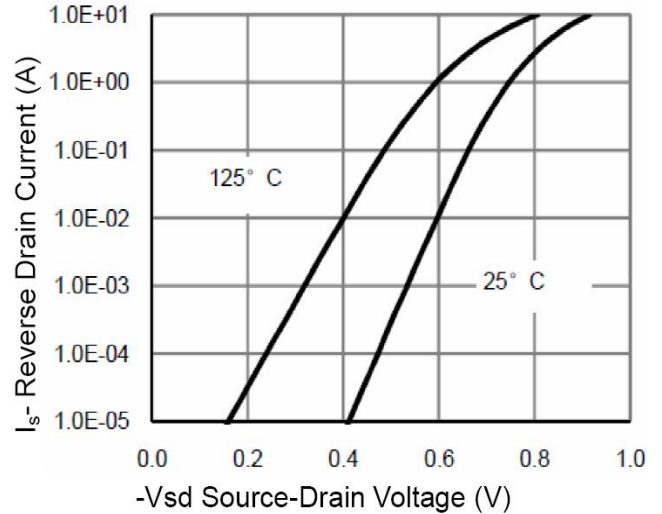


Figure 6 Source- Drain Diode Forward

Typical Characteristics

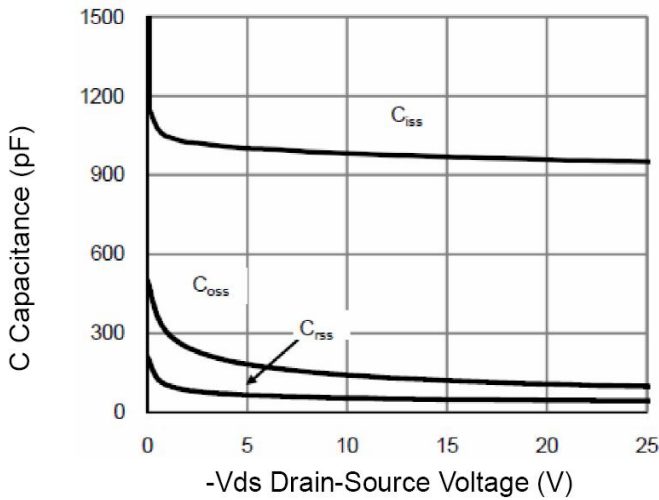


Figure 7 Capacitance vs Vds

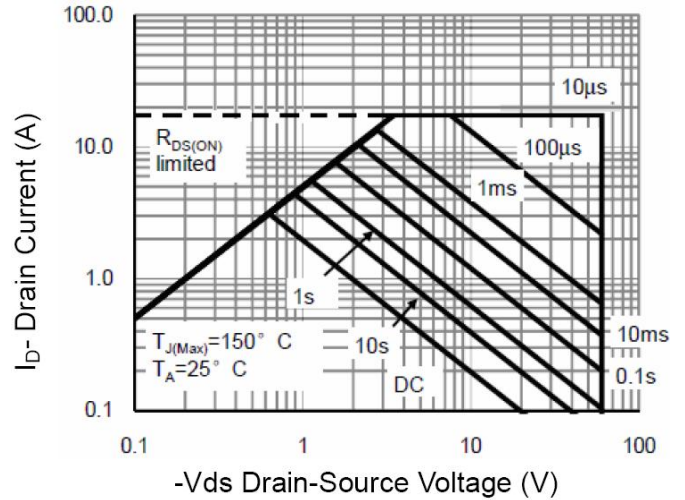


Figure 8 Safe Operation Area

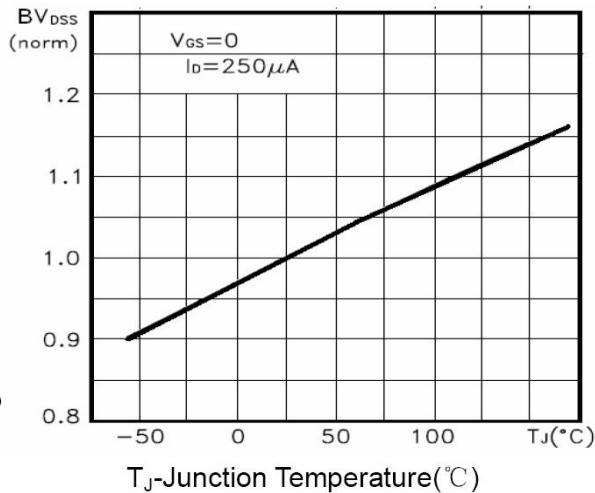


Figure 9 BV_{DSS} vs Junction Temperature

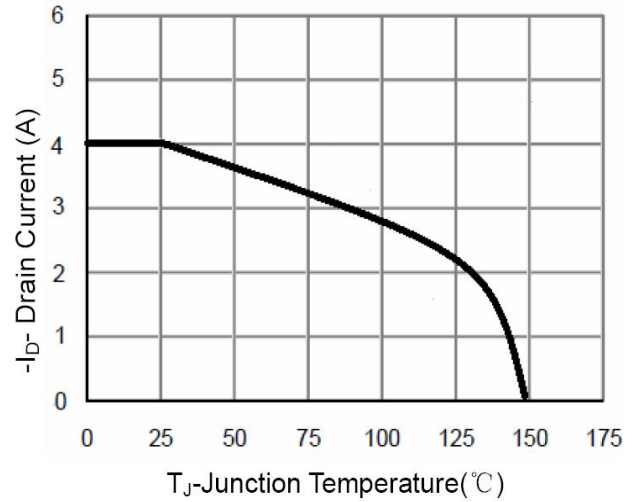


Figure 10 ID Current De-rating

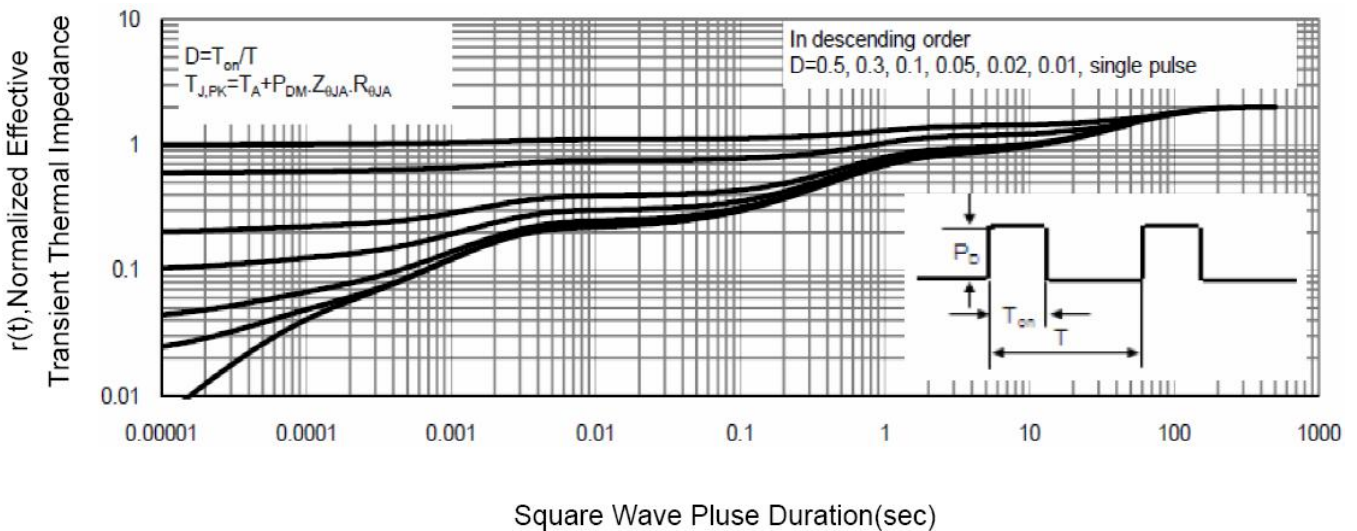
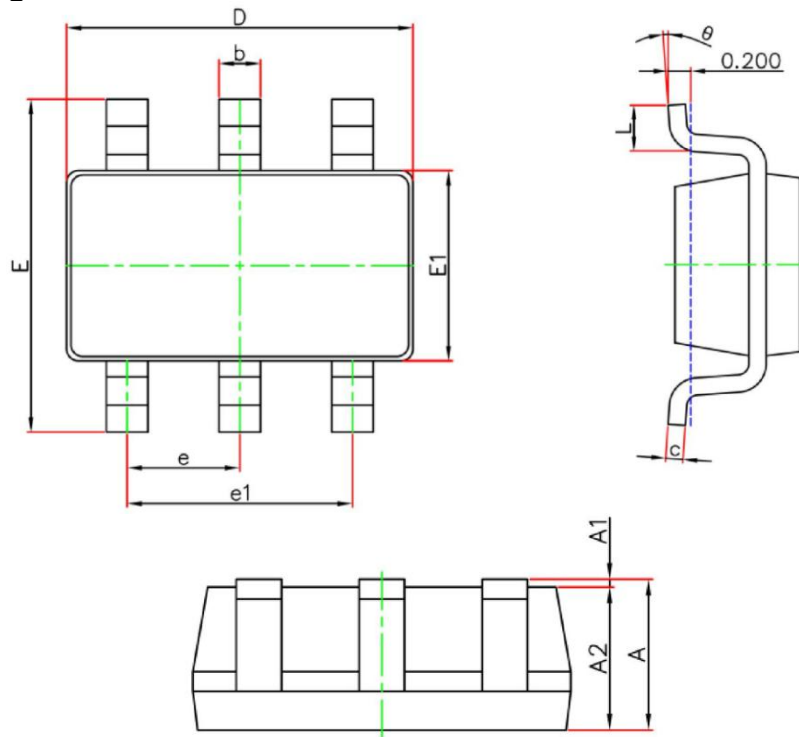


Figure 11 Normalized Maximum Transient Thermal Impedance

SOT-23-6L Package Information



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
E	2.650	2.950	0.104	0.116
E1	1.500	1.700	0.059	0.067
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
θ	0°	8°	0°	8°