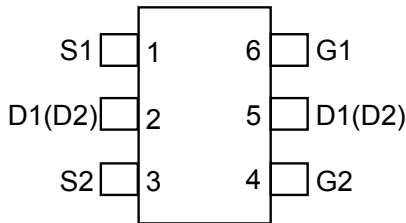


Description

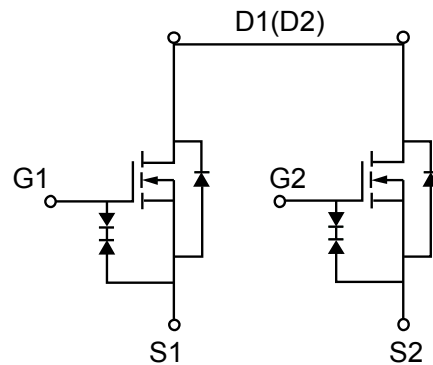
The MOSFET provide the best combination of fast switching, low on-resistance and cost-effectiveness.

MOSFET Product Summary		
V _{DS} (V)	R _{DS(on)} (mΩ)	I _D (A)
20	16@ VGS=4.5V	7

Top View(SOT23-6)



Internal Structure



Absolute maximum rating@25°C

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C 7	A
		T _A =70°C 4.6	
Pulsed Drain Current	I _{DM}	60	A
Maximum Power Dissipation	P _D	T _A =25°C 1.3	W
		T _A =70°C 0.8	
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Typical	Maximum	Units
Maximum Junction-to-Ambient	R _{θJA}	t≤10s 76	95	°C/W
Maximum Junction-to-Ambient		Steady-State 118	150	
Maximum Junction-to-Lead	R _{θJL}	Steady-State 54	68	°C/W

Electrical characteristics per line@25 °C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = 250\mu A, V_{GS} = 0V$	20		-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 10V$	-	-	± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.75	1.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 7A$		16	20	m Ω
		$V_{GS} = 2.5V, I_D = 5A$		20	24	
		$V_{GS} = 1.8V, I_D = 2A$		23	35	
Total Gate Charge	Q_g	$V_{GS} = 10V, V_{DS} = 10V,$ $I_D = 7.0A$		16.2	21	nC
Total Gate Charge	Q_g	$V_{GS} = 4.5V, V_{DS} = 10V,$ $I_D = 7.0A$		7.7	10	
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.7		
Input Capacitance	C_{ISS}	$V_{GS} = 0V, V_{DS} = 10V,$ $f = 1MHz$	-	620	780	pF
Output Capacitance	C_{OSS}		-	125		pF
Reverse Transfer Capacitance	C_{RSS}		-	64		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = 10V, R_{GEN} = 3\Omega,$ $V_{GS} = 10V, R_L = 1.7\Omega$	-	236		ns
Turn-Off Delay Time	$t_{d(off)}$		-	9.5		μs
Turn-On Rise Time	t_r		-	448		ns
Turn-On Fall Time	t_f		-	4.1		μs
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 7A, di/dt = 100A/\mu s$		25	33	ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F = 7A, di/dt = 100A/\mu s$		9		nC
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 1.0A$		0.65	1.0	V
Maximum Body-Diode Continuous Current	I_S				1.3	A

Typical Characteristics

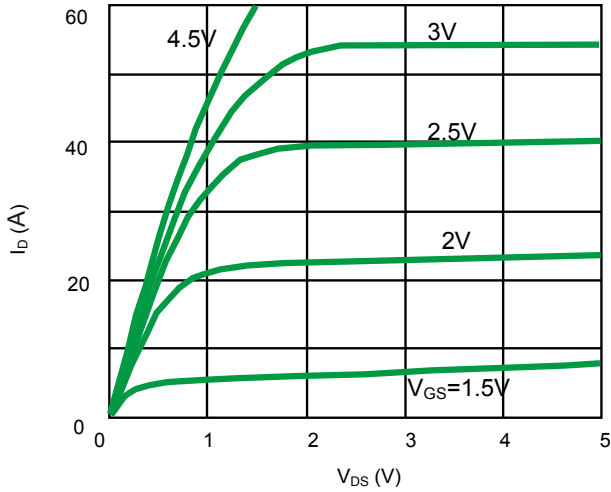


Fig 1. On-Region Characteristics

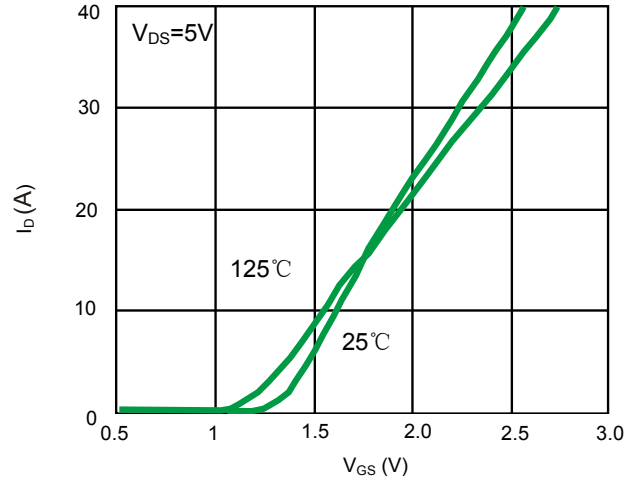


Fig 2. Transfer Characteristics

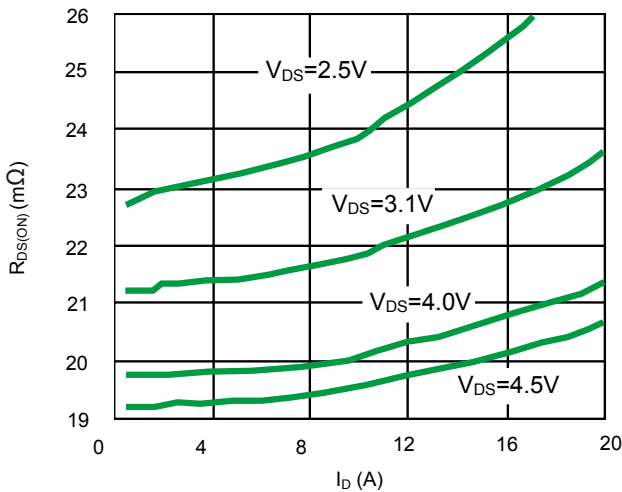


Fig 3. On-Resistance vs. Drain Current and gate Voltage

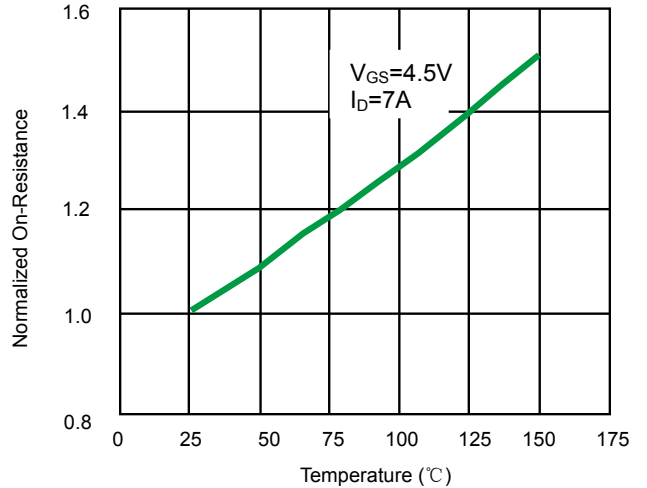


Fig 4. On-Resistance vs. Junction Temperature

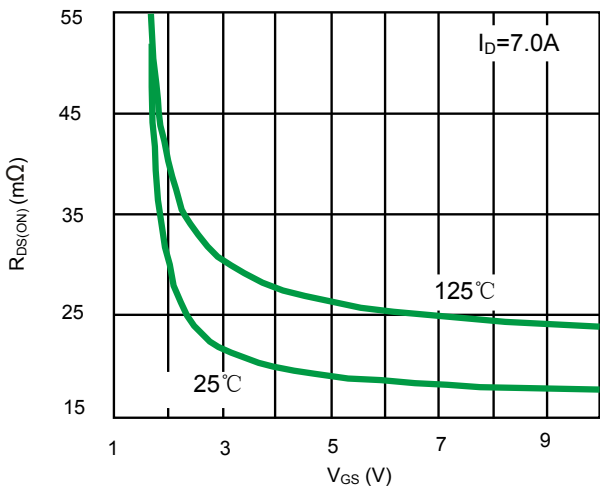


Fig 5. On-Resistance vs. Gate-Source Voltage

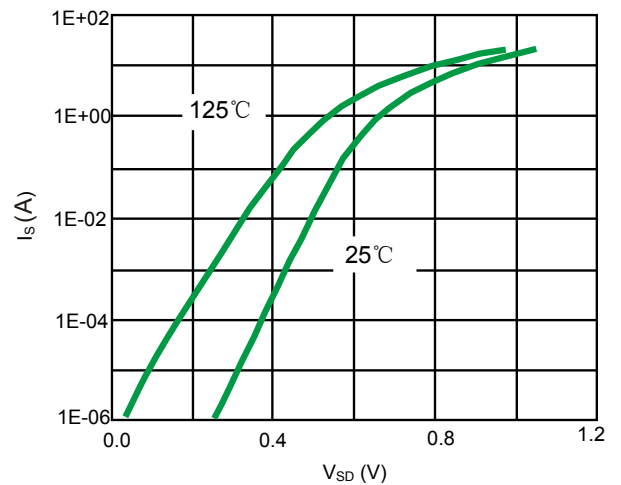


Fig 6. Body-Diode Characteristics

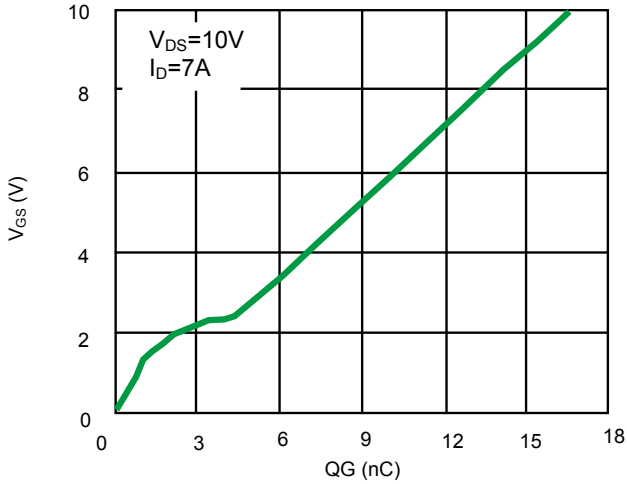


Fig 7. Gate Charge Characteristics

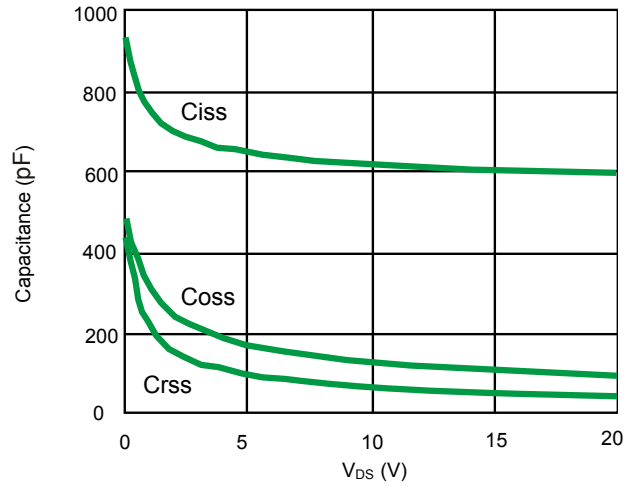


Fig 8. Capacitance Characteristics

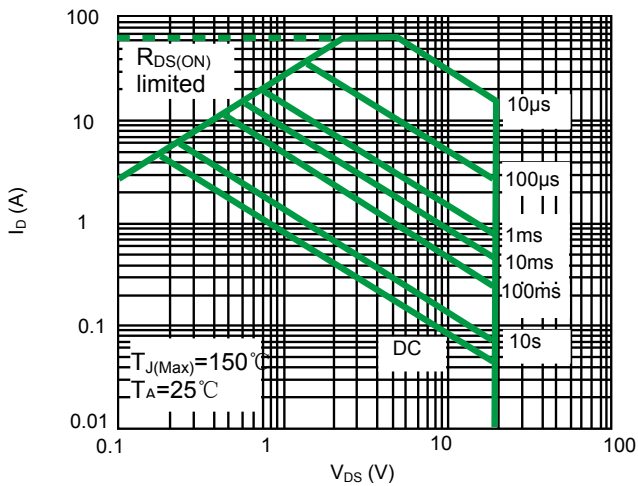


Fig 9. Maximum Forward Biased Safe Operating Area

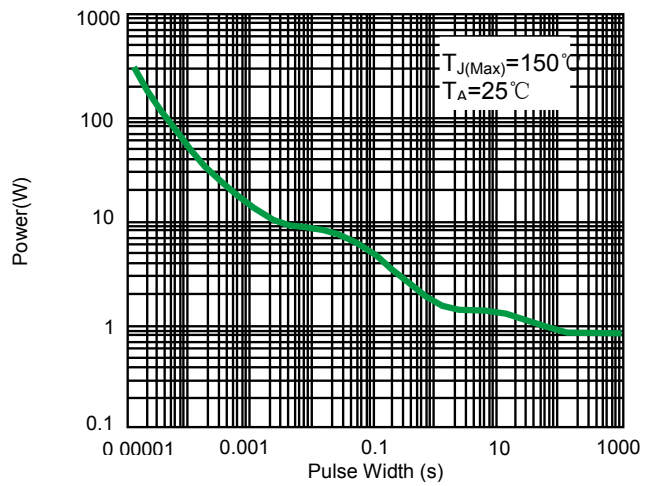


Fig 10. Single Pulse Power Rating Junction-to-Ambient

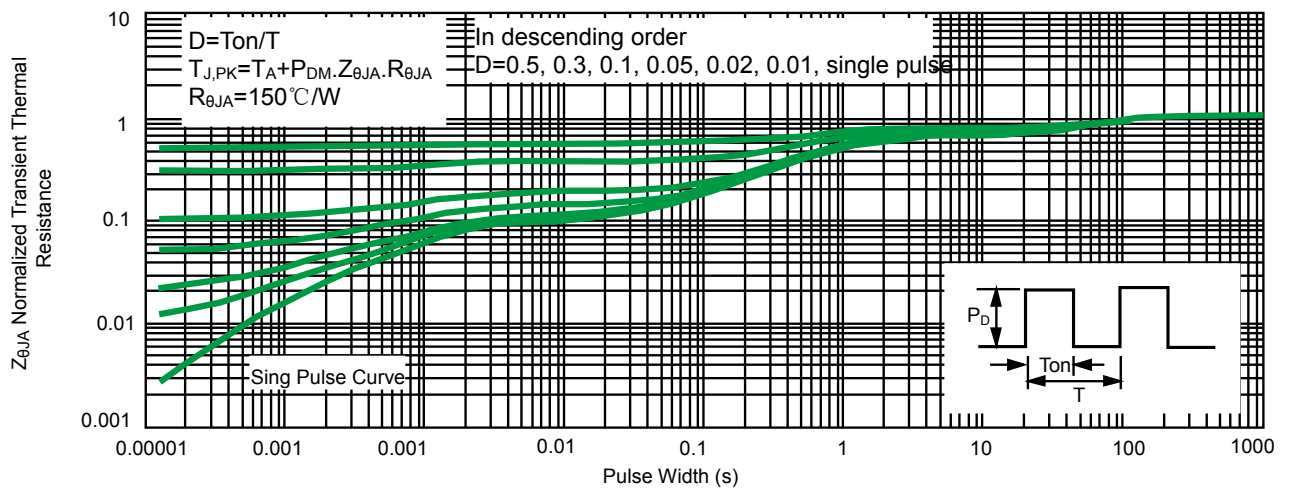
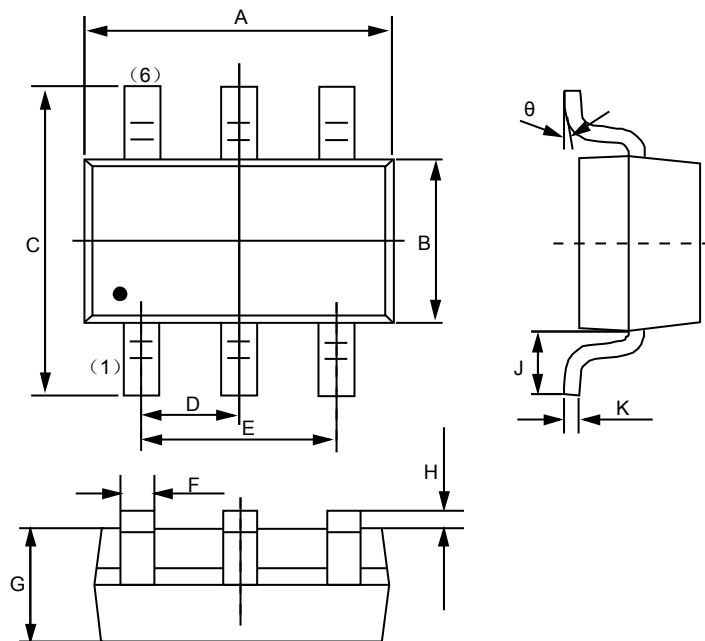



Fig 11. Normalized Maximum Transient Thermal Impedance

Product dimension (SOT-23-6L)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.820	3.020	0.111	0.119
B	1.500	1.700	0.059	0.067
C	2.650	2.950	0.104	0.116
D	0.950 (BSC)		0.037 (BSC)	
E	1.800	2.000	0.071	0.079
F	0.300	0.500	0.012	0.020
G	1.050	1.150	0.041	0.045
H	0.000	0.100	0.000	0.004
J	0.45	0.60	0.0180	0.0236
K	0.100	0.200	0.004	0.008
θ	0°	8°	0°	8°


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