

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	28mΩ@10V	7A
	32mΩ@4.5V	

Feature

- Trench Power LV MOSFET technology
- High density cell design for low RDS(ON)
- High Speed Switching

Application

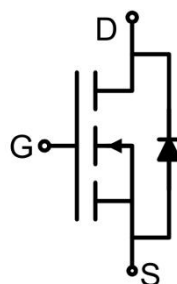
- Battery protection
- Load switch
- Power management

Package

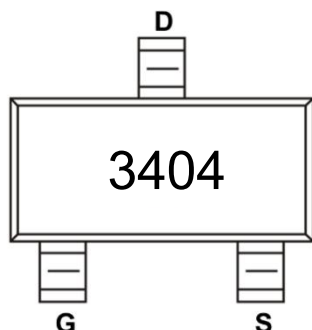


SOT-23

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	7.0	A
Pulsed Drain Current ¹⁾	I_{DM}	20	A
Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Electrical characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.8	1.4	2.2	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5A$		24	28	m Ω
		$V_{GS} = 4.5V, I_D = 4A$		26	32	
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		255		pF
Output Capacitance	C_{oss}			45		
Reverse Transfer Capacitance	C_{rss}			35		
Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 10V, I_D = 5.8A$		5.2		nC
Gate-Source Charge	Q_{gs}			0.85		
Gate-Drain Charge	Q_{gd}			1.3		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 15V, V_{GS} = 10V$ $R_{GEN} = 3\Omega, R_L = 2.6\Omega$		4.5		nS
Turn-on rise time	t_r			2.5		
Turn-off delay time	$t_{d(off)}$			14.5		
Turn-off fall time	t_f			3.5		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	$V_{GS} = 0V, I_S = 1A$			1.16	V

Notes:

- 1) pulse test : pulse width $\leq 300\mu\text{s}$, duty $\leq 2\%$.
- 2) Guaranteed by design, not subject to production testing.

Typical Characteristics

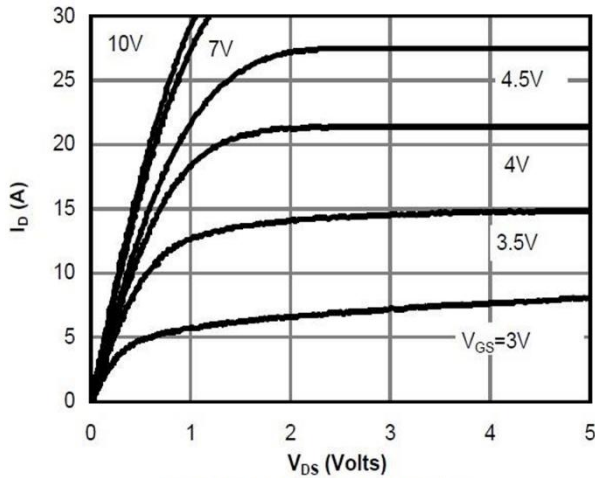


Fig 1: On-Region Characteristics

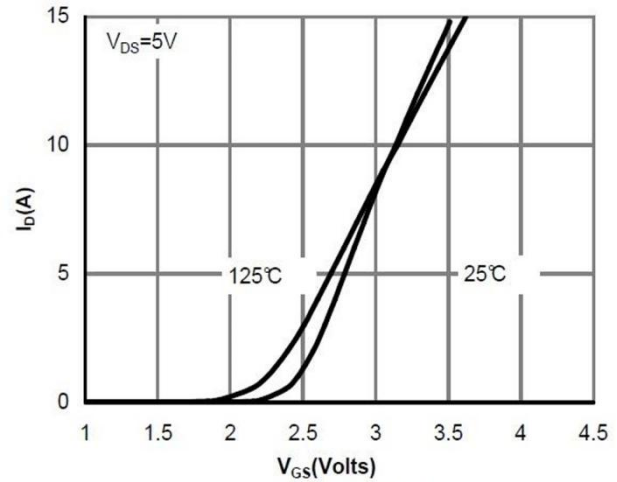


Figure 2: Transfer Characteristics

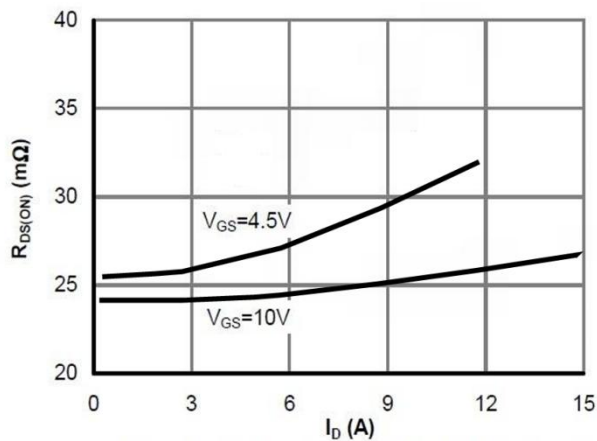


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

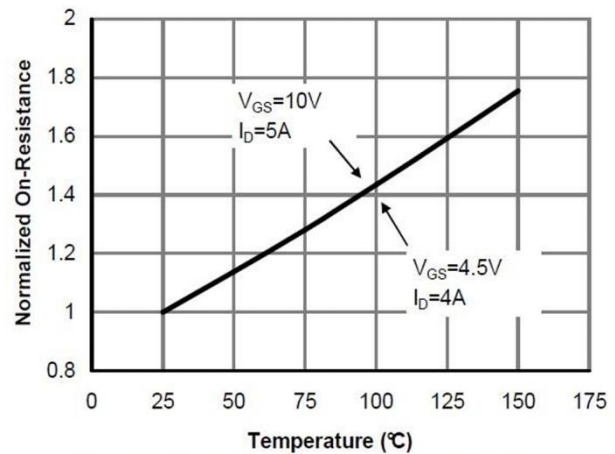


Figure 4: On-Resistance vs. Junction Temperature

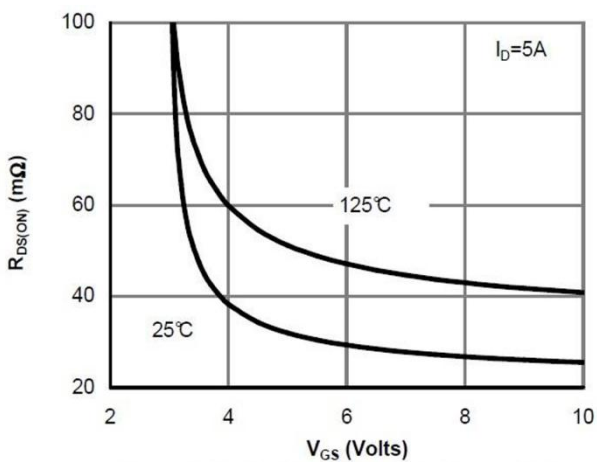


Figure 5: On-Resistance vs. Gate-Source Voltage

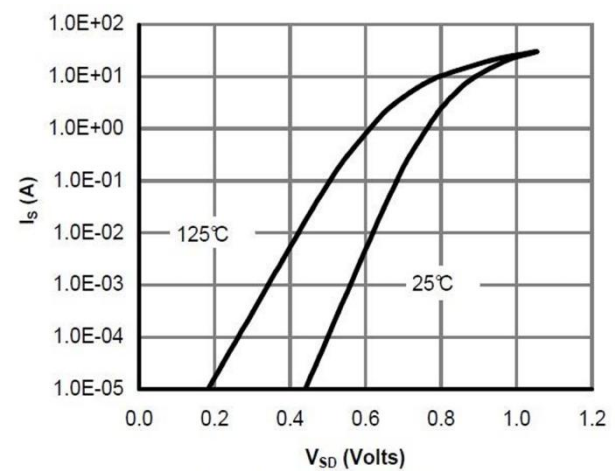


Figure 6: Body-Diode Characteristics

Typical Characteristics

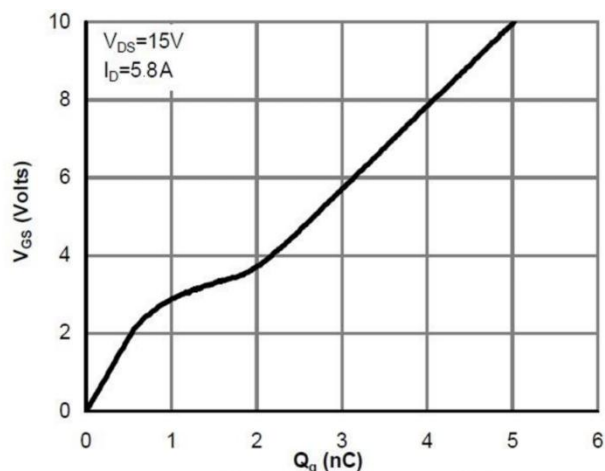


Figure 7: Gate-Charge Characteristics

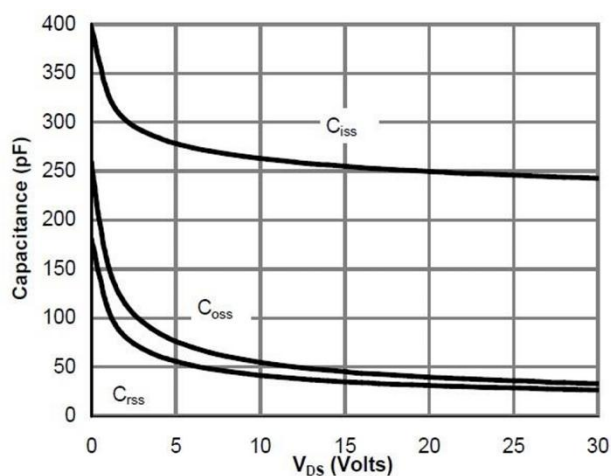


Figure 8: Capacitance Characteristics

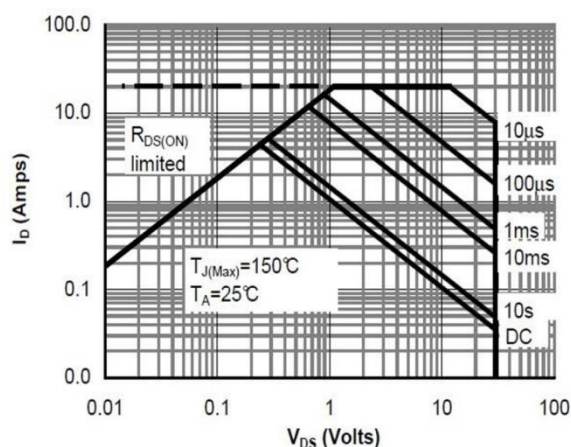


Figure 9 : Maximum Forward Biased Safe Operating Area

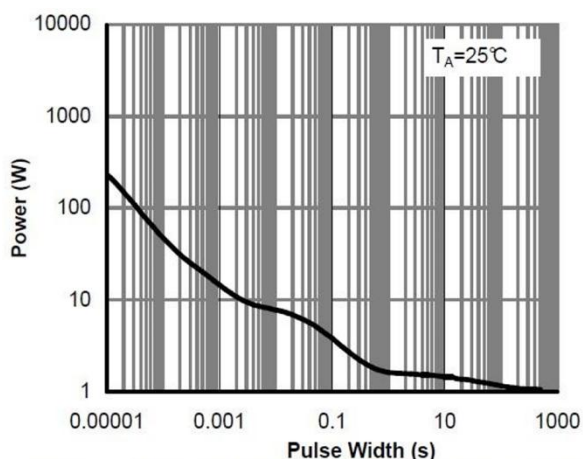


Figure10 : Single Pulse Power Rating Junction-to-Ambient

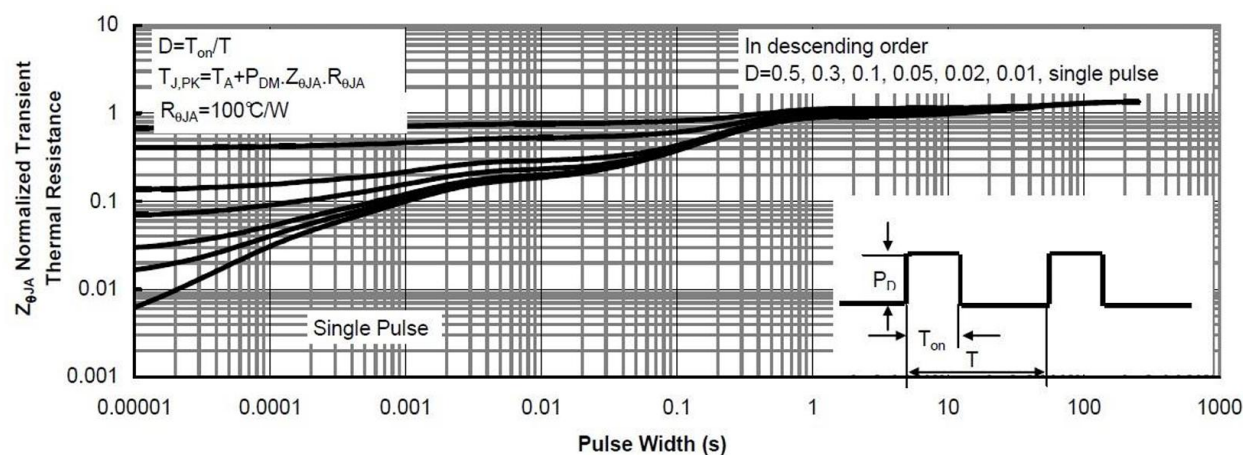
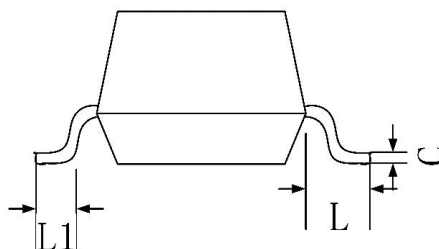
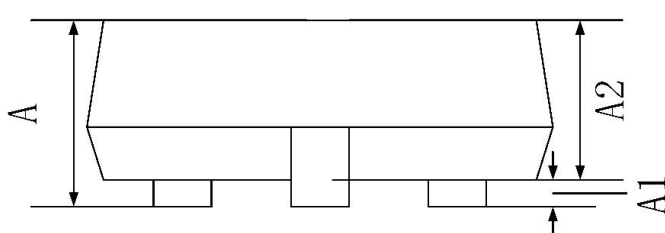
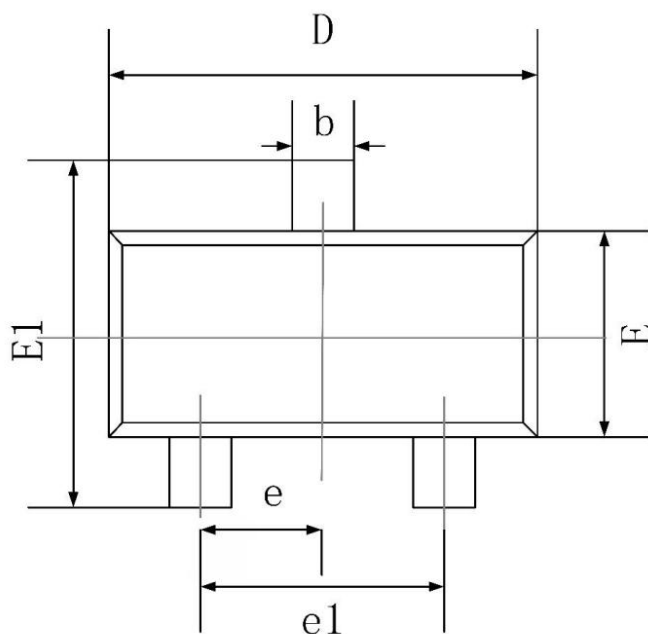


Figure 11: Normalized Maximum Transient Thermal Impedance

SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.200	0.003	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.			
L1	0.200	0.500	0.008	0.020