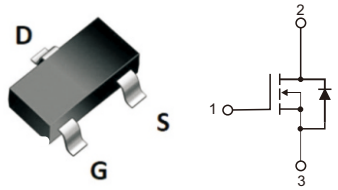
FEATURES

- $R_{DS(ON)} \leqq$ 140mΩ@V_{GS}=10V
- $R_{DS(ON)} \leqq$ 170mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Capable doing Cu wire bonding
- Qualified to AEC-Q101 Standards for High Reliability

PINNING

PIN	DESCRIPTION
1	GATE
2	DRAIN
3	SOURCE



Simplified outline SOT-23 and symbol

Automotive Grade

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- Load Switch
- DSC

MAXIMUM RATINGS (Ta =25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current@ T_A=25℃	I_D	1.9	A
Continuous Drain Current@T_A=75℃		1.2	A
Pulsed Drain Current	I_{DM}	8	A
Power Dissipation	P_D	0.7	W
Operation Junction Temperature	T_j	150	°C

Tip:The device mounted on 1in^2 Fr4 board with 2 oz copper

ELECTRICAL CHARACTERISTICS (Ta = 25°C unless otherwise noted.)

Parameter		Symbol	Test conditions	Min	Typ	Max	Unit
OFF Characteristics							
Drain-Source Breakdown Voltage		BV_{DSS}	V_{GS} = 0V,I_D = 250uA	60			V
Drain-Source Leakage Current		I_{DSS}	V_{DS} = 60V,V_{GS} = 0V			1	uA
Gate- Source Leakage Current	Forward	I_{GSS}	V_{GS} = 20V,V_{DS} = 0V			100	nA
	Reverse		V_{GS} = -20V,V_{DS} = 0V			-100	
On Characteristics							
Gate Threshold Voltage		$V_{GS(th)}$	V_{DS} = V_{GS},I_D = 250uA	1		3	V
Static Drain-Source On-State Resistance[1]		$R_{DS(on)}$	V_{GS} = 10V,I_D = 2.6A		102	140	mΩ
			V_{GS} = 4.5V,I_D = 2.1A		125	170	
Dynamic Characteristics							
Input Capacitance		C_{ISS}	V_{DS} =30V V_{GS} = 0V f =1.0MHz		350		pF
Output Capacitance		C_{OSS}			40		
Reverse Transfer Capacitance		C_{RSS}			12		
Switching Characteristics							
Total Gate Charge		Q_g	V_{DS} =30V V_{GS} =4.5V I_D = 2.6A		6.5		nC
Gate-Source Charge		Q_{gs}			2.2		
Gate-Drain Charge		Q_{gd}			2.7		
Switching Characteristics							
Turn-On Delay Time		$t_{d(on)}$	V_{DD}=20V, R_L=20Ω, V_{GEN}=10V, I_D=1A, R_D=1Ω		10		ns
Turn-On Rise Time		t_{rr}			11		
Turn-Off Delay Time		$t_{d(off)}$			29		
Turn-Off Fall Time		t_f			3		

Notes1: Pulse test: pulse width 300us, duty cycle≦ 2%, Guaranteed by design, not subject to production testing.

Typical Performance Characteristics

Fig 1.On Resistance vs. Junction Temperature

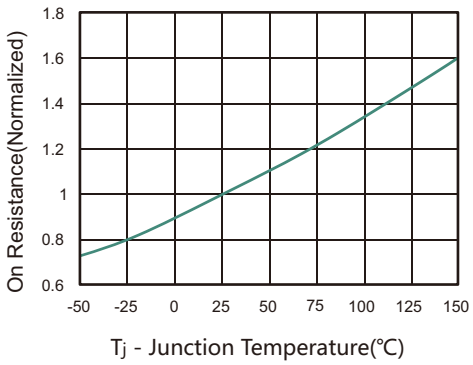


Fig 2.On Resistance vs. Drain Current

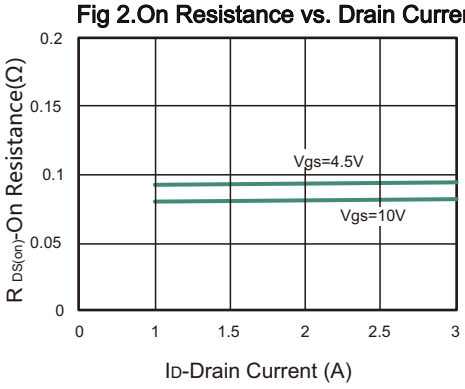


Fig 3.Capacitance

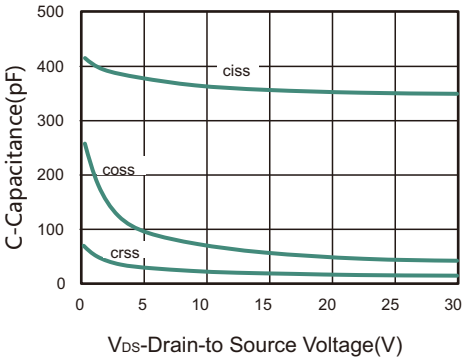


Fig 4.On Resistance vs. Gate-to-Source Voltage

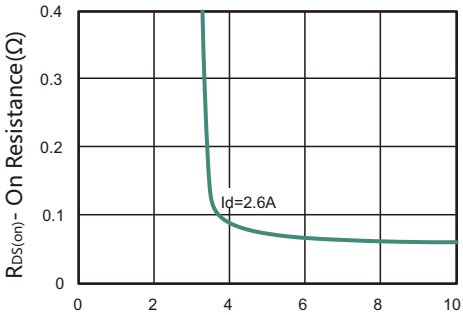


Fig 5.Threshold Voltage

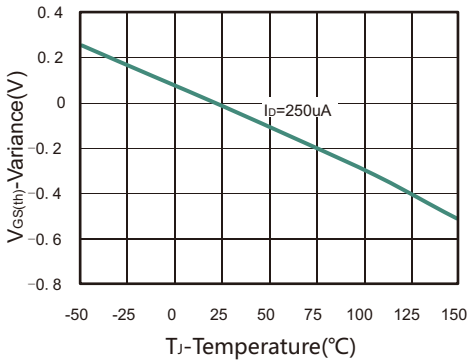


Fig 6.On-Region Characteristics

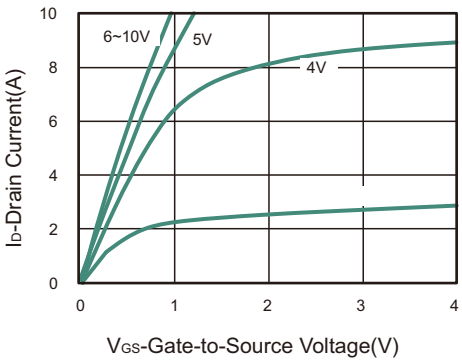


Fig 7.Body-diode characteristics

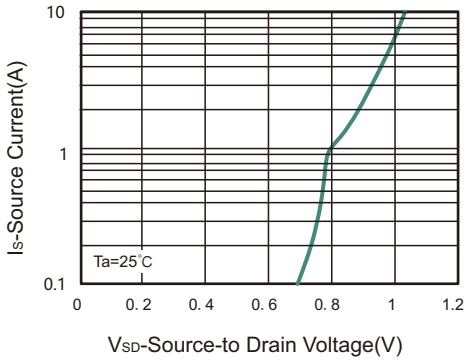
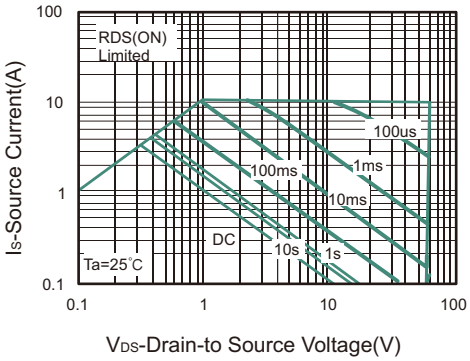


Fig 8.Maximum Forward Biased Safe Operating Area



Typical Performance Characteristics

Fig 9.Single Pulse Maximum Power Dssipation

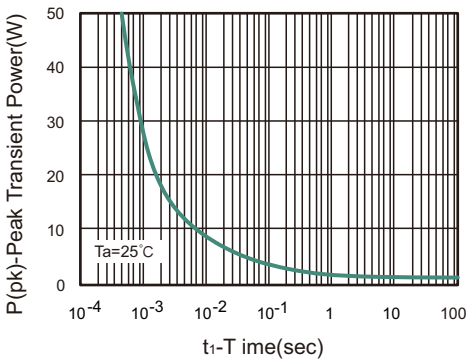
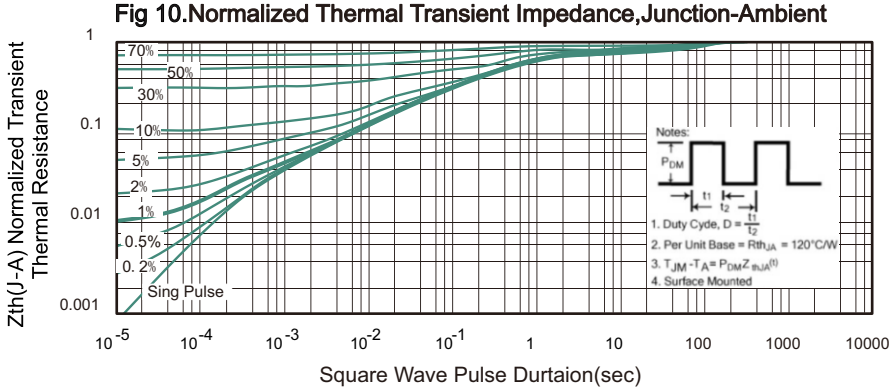
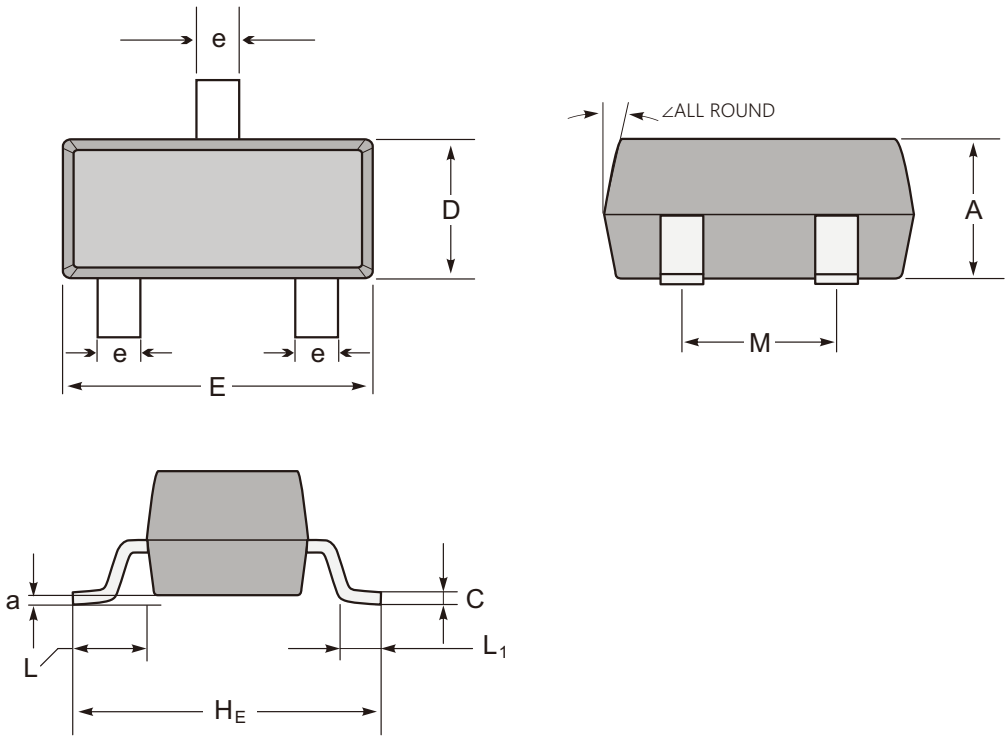


Fig 10.Normalized Thermal Transient Impedance,Junction-Ambient



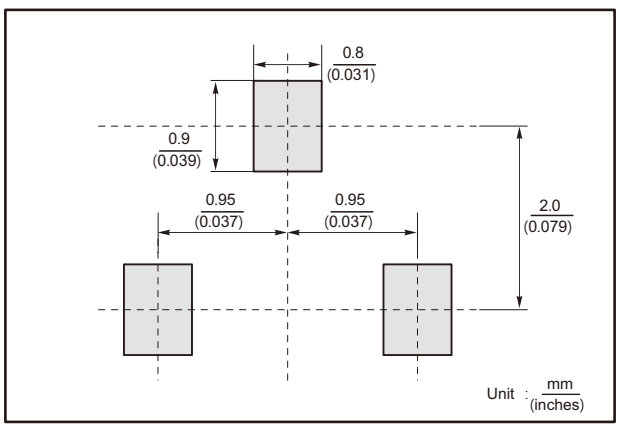
SOT-23 Package Outline Dimensions



SOT-23 mechanical data

UNIT		A	C	D	E	HE	e	M	L	L1	a	∠
mm	max	1.1	0.20	1.4	3.0	2.6	0.6	1.95	0.55 (ref)	0.36 (ref)	0.15	12°
	min	0.9	0.08	1.2	2.8	2.2	0.35	1.7			0.0	
mil	max	43	7.9	55	118	102	24	77	22 (ref)	14 (ref)	6	
	min	35	3.1	47	110	87	13	67			0.0	

The recommended mounting pad size



Marking

Type number	Marking code
NM2308WD	2308

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