



NM3400

5.8A, 30V N-CHANNEL MOSFET

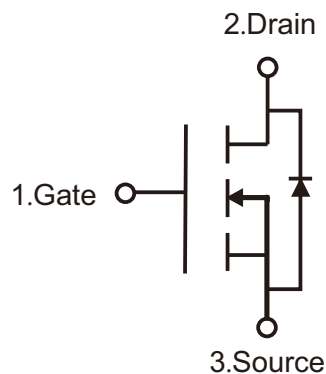
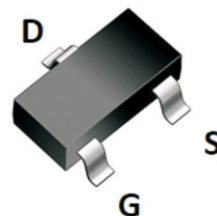
Features

- $R_{DS(ON)} \leq 33m\Omega @ V_{GS}=10V, I_D=4A$
- $R_{DS(ON)} \leq 35m\Omega @ V_{GS}=4.5, I_D=4A$
- $R_{DS(ON)} \leq 55m\Omega @ V_{GS}=2.5, I_D=3A$
- High Speed Switching
- High Density Cell Design For Low $R_{DS(ON)}$
- Trench Power LV MOSFET Technology

Features

- Load Switch
- PWM Application
- Power Management

SOT-23



Absolute Maximum Ratings (TA=25°C, unless otherwise specified)

Parameter	Symbols	Ratings	Units
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	I_D	5.8	A
Pulsed Drain Current(A)	I_{DM}	23	A
Power Dissipation	P_D	1.2	W
Thermal Resistance,Junction to Case(B)	$R_{\theta JA}$	100	$^{\circ}CW$
Operation Junction Temperature and Storage Temperature	T_j, T_{stg}	-55 ~ +150	$^{\circ}C$



Electrical Characteristics (TA=25°C, unless otherwise specified)

Parameter	Symbols	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	B _{VDS}	V _{GS} = 0V, I _D = 250μA	30	32		V
Drain-Source Leakage Current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V			1	μA
Gate- Source Leakage Current	Forward	I _{GSS}			100	nA
	Reverse				-100	
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.6	0.9	1.5	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 4A		21	33	mΩ
		V _{GS} = 4.5V, I _D = 4A		23	35	mΩ
		V _{GS} = 2.5V, I _D = 3A		38	55	mΩ
Drain-Source Diode Forward Voltage	V _{SD}	I _S = 5.8A, V _{GS} = 0V			1.2	V
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	V _{DS} = 15V, V _{GS} = 0V, f = 1.0MHz		630		pF
Output Capacitance	C _{oss}			55		pF
Reverse Transfer Capacitance	C _{rss}			71		pF
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 15V, V _{GS} = 10V, I _D = 5.8A		17.5		nC
Gate-Source Charge	Q _{gs}			2.1		nC
Gate-Drain Charge	Q _{gd}			2		nC
Turn-On Delay Time	t _{D(on)}	V _{DS} = 15V, V _{GS} = 10V, I _D = 5.8A, R _{GEN} = 3Ω		4.4		ns
Turn-On Rise Time	t _r			28.2		ns
Turn-Off Delay Time	t _{D(off)}			16.2		ns
Turn-Off Fall Time	t _f			26		ns

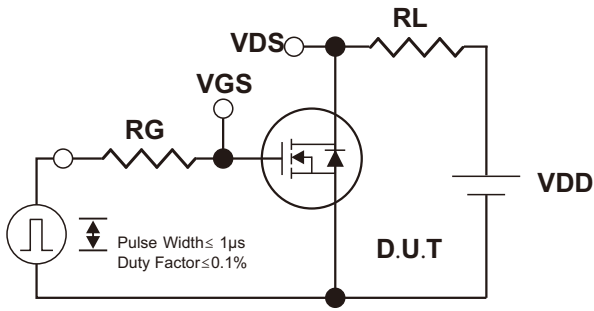
Notes:

A. Pulse Test: Pulse Width ≤ 300μs, Duty cycle ≤ 2%.

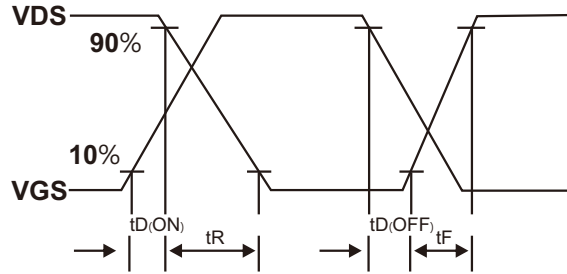
B. RθJA is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the soldermounting surface of the drain pins. RθJC is guaranteed by design, while RθJA is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.



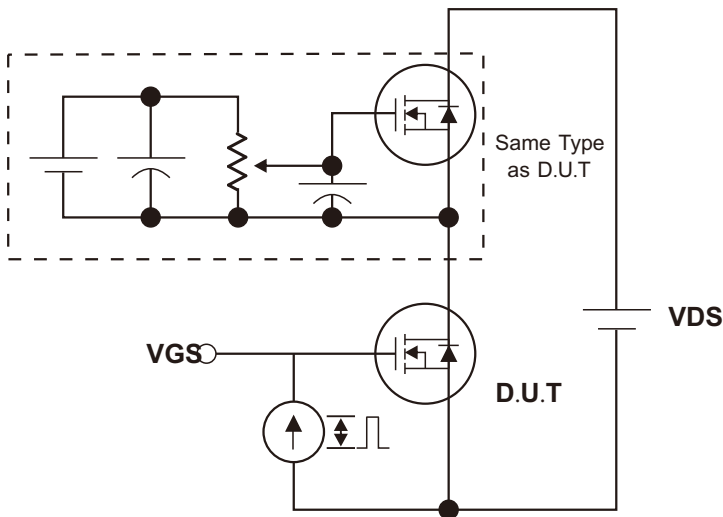
Test Circuits and waveforms



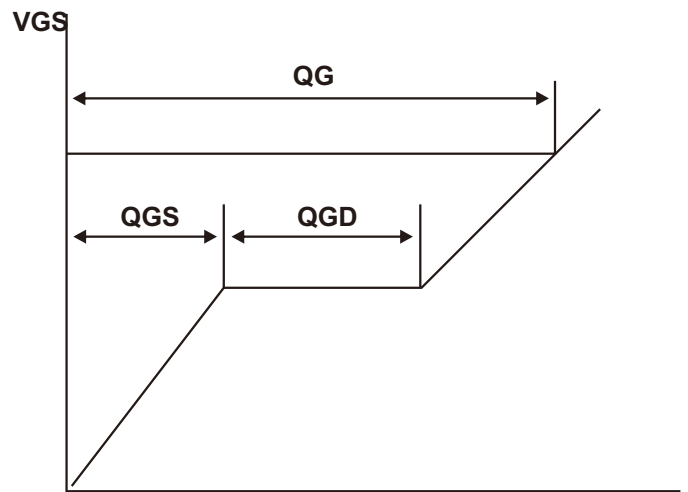
Switching Test Circuit



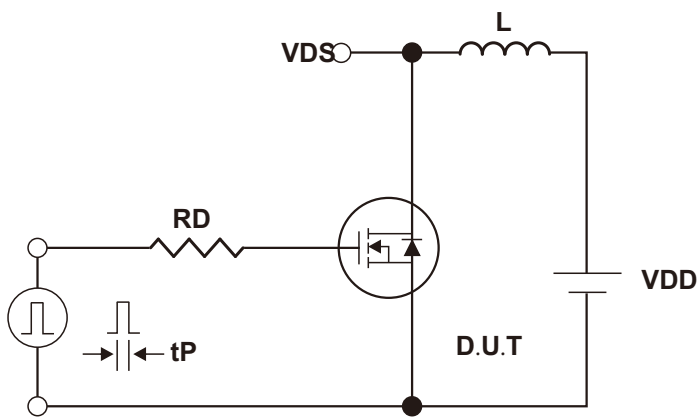
Switching Waveforms



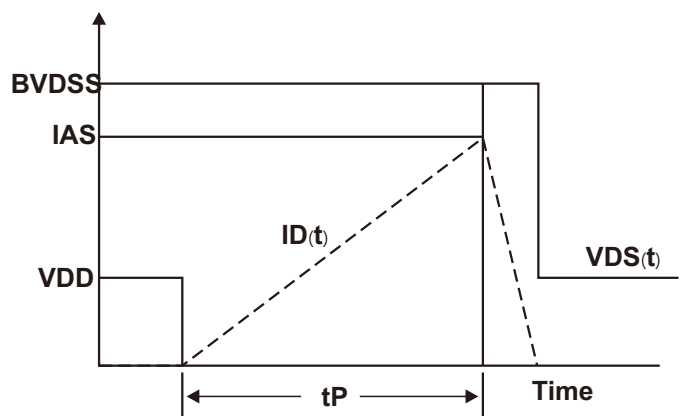
Gate Charge Test Circuit



Charge
Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms



Typical Characteristics

Fig.1 Output Characteristics

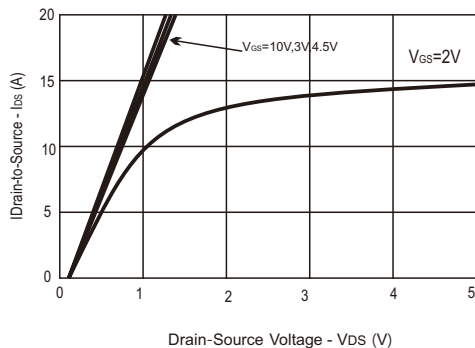


Fig.2 Typical Transfer Characteristics

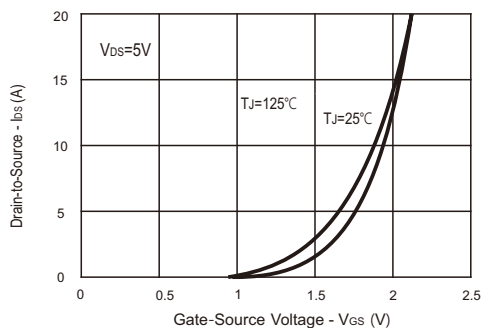


Fig.3 Drain-Source On-Resistance vs. Drain Current

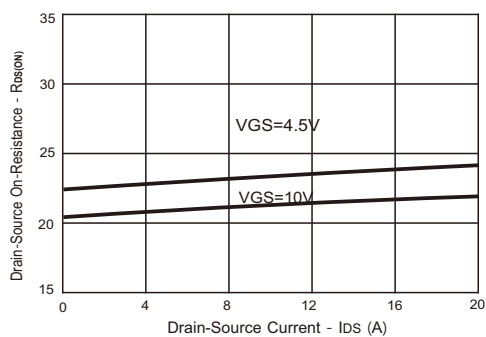


Fig.4 On-Resistance vs. Junction temperature

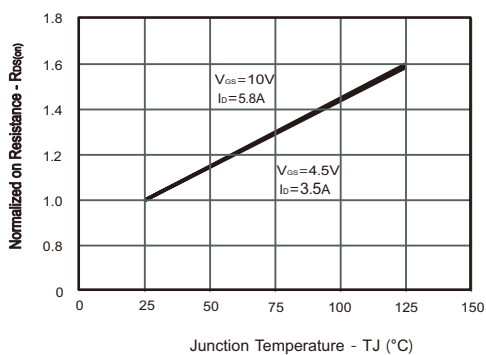


Fig.5 Gate-Charge Characteristics

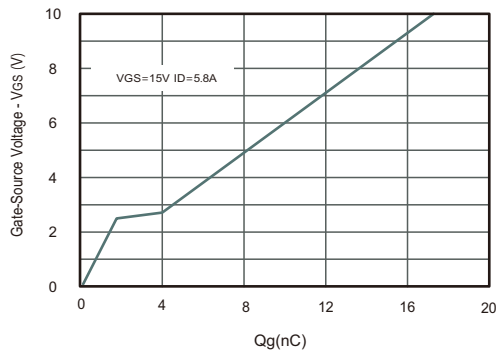
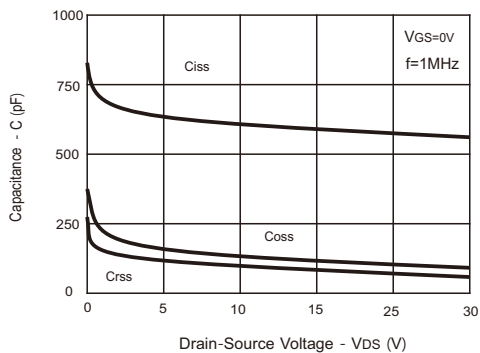
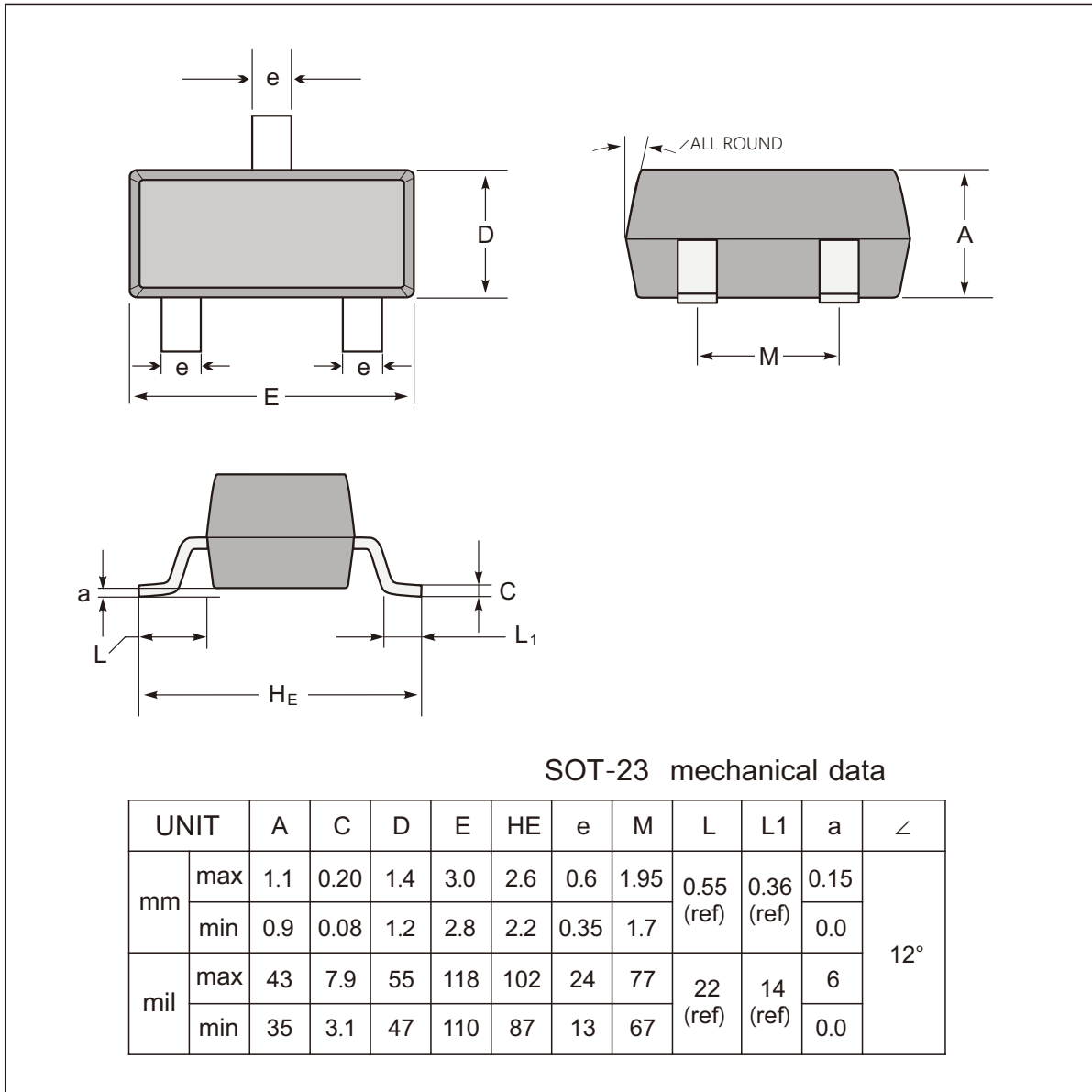


Fig.6 Capacitance vs. Drain-Source Voltage

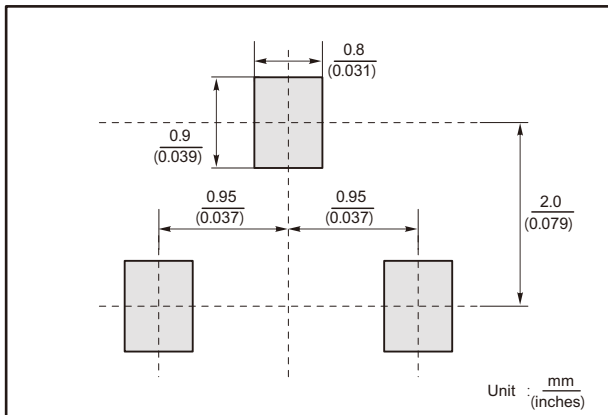




SOT-23 Package Outline Dimensions



The recommended mounting pad size



Marking

Type number	Marking code
NM3400	3400



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