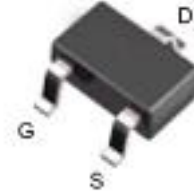


N-Channel Enhancement Mode MOSFET

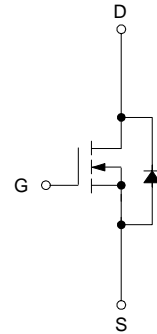
Features

- +30V / 4A , N-MOSFET  
 $R_{DS(ON)}=30m\Omega(\text{typ.}) @ V_{GS}=10V$   
 $R_{DS(ON)}=50m\Omega(\text{typ.}) @ V_{GS}=4.5V$
- Super High Dense Cell Design
- Reliable and Rugged
- Lead Free Available (RoHS Compliant)

Pin Description



Top View of SOT-23

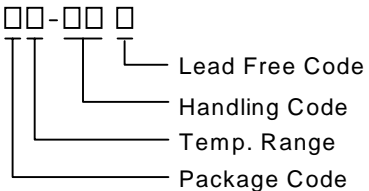



N-Channel MOSFET

Applications

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

Ordering and Marking Information

<p>BM3406</p> 	<p>Package Code  A : SOT-23  Operating Junction Temp. Range  C : -55 to 150°C  Handling Code  TU : Tube    TR : Tape &amp; Reel  Lead Free Code  L : Lead Free Device    Blank : Original Device</p>
	

**Absolute Maximum Ratings** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Rating	Unit	
$V_{DSS}$	Drain-Source Voltage	30	V	
$V_{GSS}$	Gate-Source Voltage	$\pm 20$		
$I_D^*$	Continuous Drain Current	$V_{GS}=10V$	A	
$I_{DM}^*$	300 $\mu\text{s}$ Pulsed Drain Current			12
$I_S^*$	Diode Continuous Forward Current	1.3	A	
$T_J$	Maximum Junction Temperature	150	$^\circ\text{C}$	
$T_{STG}$	Storage Temperature Range	-55 to 150		
$P_D^*$	Maximum Power Dissipation	$T_A=25^\circ\text{C}$	0.83	W
		$T_A=100^\circ\text{C}$	0.3	
$R_{\theta JA}^*$	Thermal Resistance-Junction to Ambient	150	$^\circ\text{C/W}$	

Note:

\*Surface Mounted on 1in<sup>2</sup> pad area,  $t \leq 10\text{sec}$ .**Electrical Characteristics** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Test Condition	BM3406			Unit
			Min.	Typ.	Max.	
<b>Static Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu\text{A}$	30			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$ $T_J=85^\circ\text{C}$			1	$\mu\text{A}$
					30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu\text{A}$	1	1.5	2	V
$I_{GSS}$	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
$R_{DS(ON)}^a$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=4A$		30	45	m $\Omega$
		$V_{GS}=4.5V, I_{DS}=2.8A$			55	
$V_{SD}^a$	Diode Forward Voltage	$I_{SD}=1.25A, V_{GS}=0V$		0.8	1.3	V
<b>Gate Charge Characteristics<sup>b</sup></b>						
$Q_g$	Total Gate Charge	$V_{DS}=15V, V_{GS}=10V,$ $I_{DS}=4A$		12.5	16	nC
$Q_{gs}$	Gate-Source Charge			2.4		
$Q_{gd}$	Gate-Drain Charge			1.3		

**Electrical Characteristics (Cont.)** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

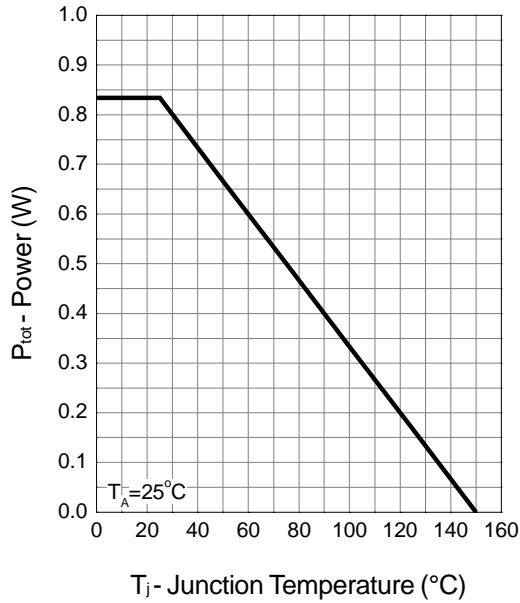
Symbol	Parameter	Test Condition	BM3406			Unit
			Min.	Typ.	Max.	
<b>Dynamic Characteristics<sup>b</sup></b>						
$R_G$	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$		1.5		$\Omega$
$C_{iss}$	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=25V,$ Frequency=1.0MHz		400		pF
$C_{oss}$	Output Capacitance			80		
$C_{rss}$	Reverse Transfer Capacitance			45		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=15V, R_L=15\Omega,$ $I_{DS}=1A, V_{GEN}=10V,$ $R_G=6\Omega$		10	19	ns
$T_r$	Turn-on Rise Time			8	15	
$t_{d(OFF)}$	Turn-off Delay Time			19	35	
$T_f$	Turn-off Fall Time			6.2	12	

Notes:

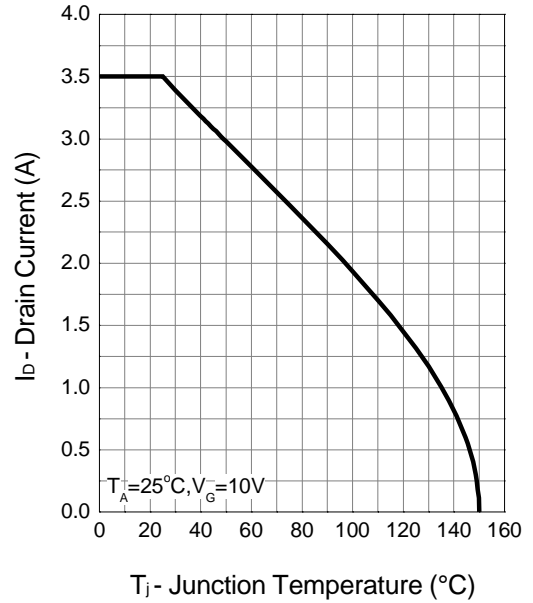
- a : Pulse test ; pulse width $\leq 300\mu\text{s}$ , duty cycle $\leq 2\%$ .  
b : Guaranteed by design, not subject to production testing.

### Typical Characteristics

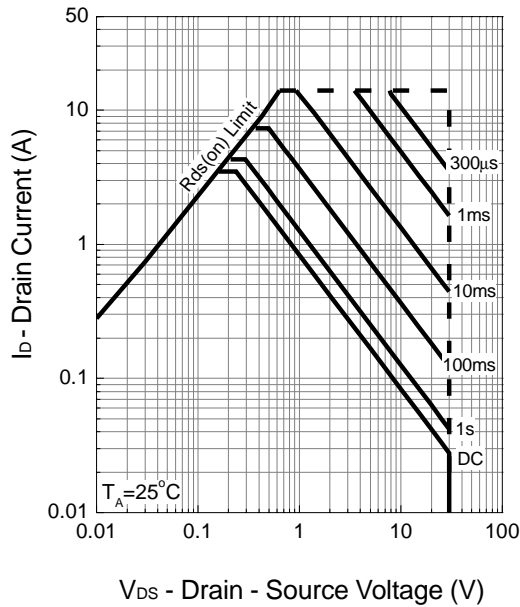
Power Dissipation



Drain Current



Safe Operation Area

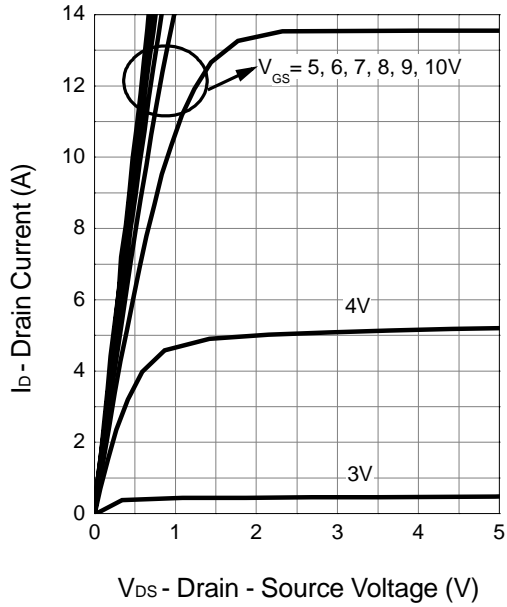


Thermal Transient Impedance

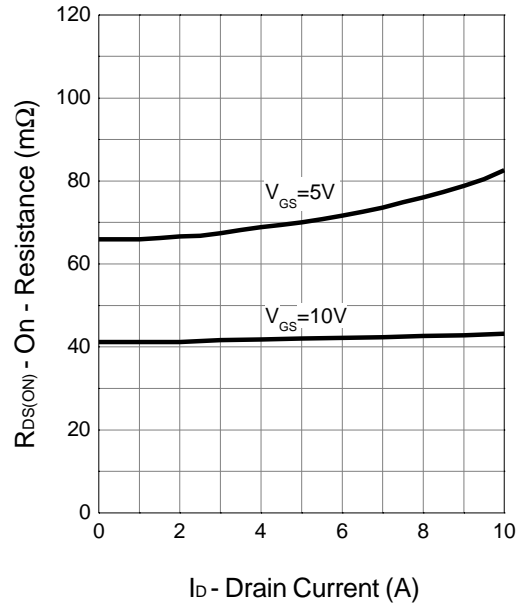


Typical Characteristics (Cont.)

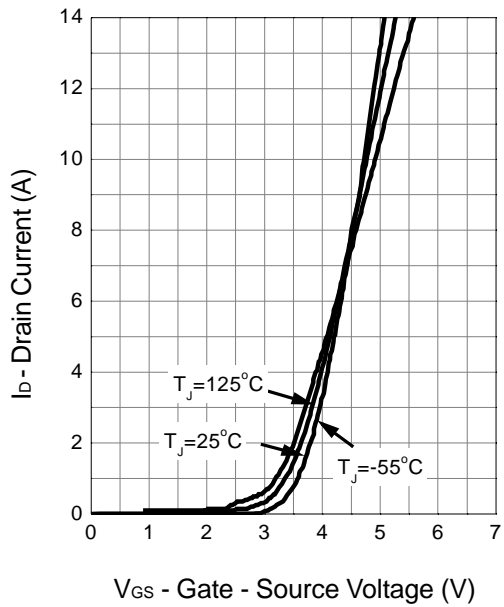
Output Characteristics



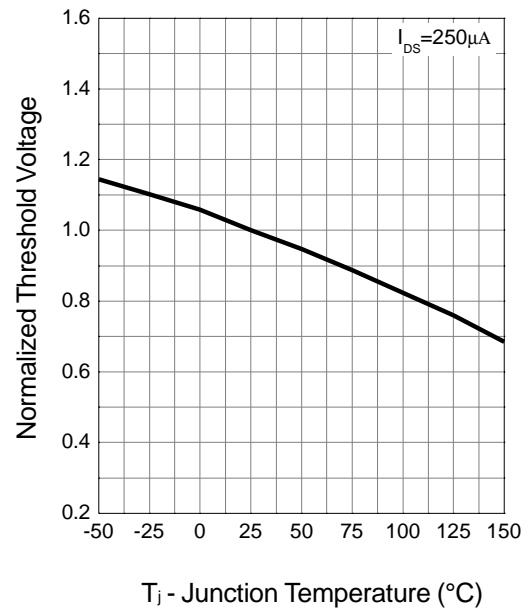
Drain-Source On Resistance

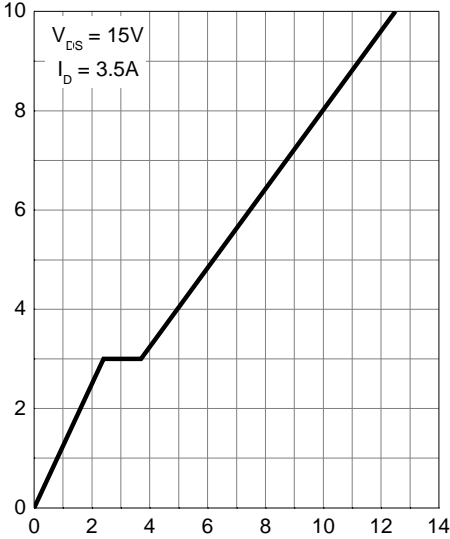
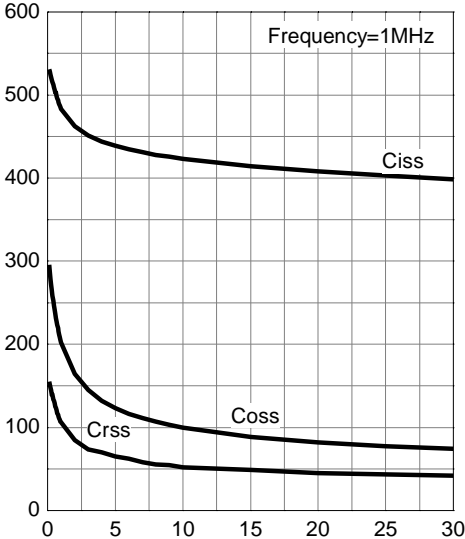
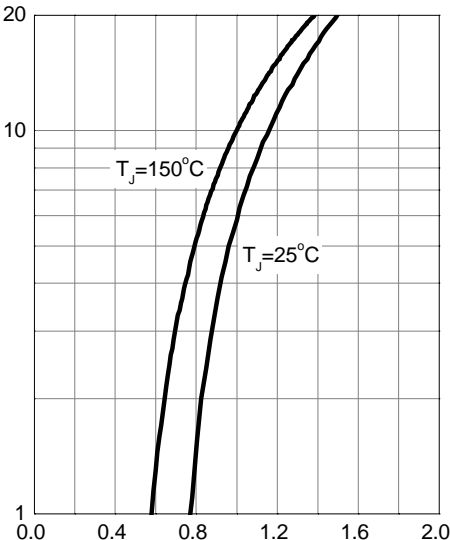
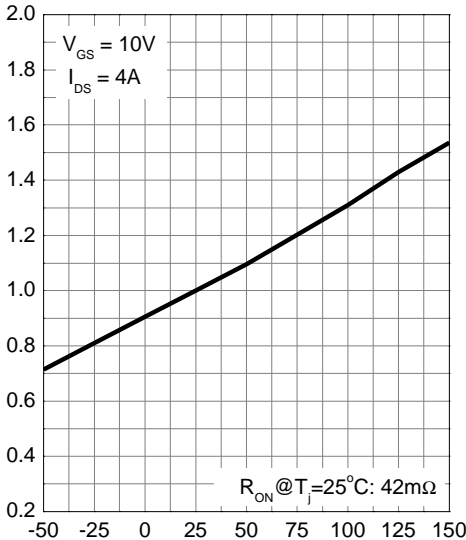


Transfer Characteristics



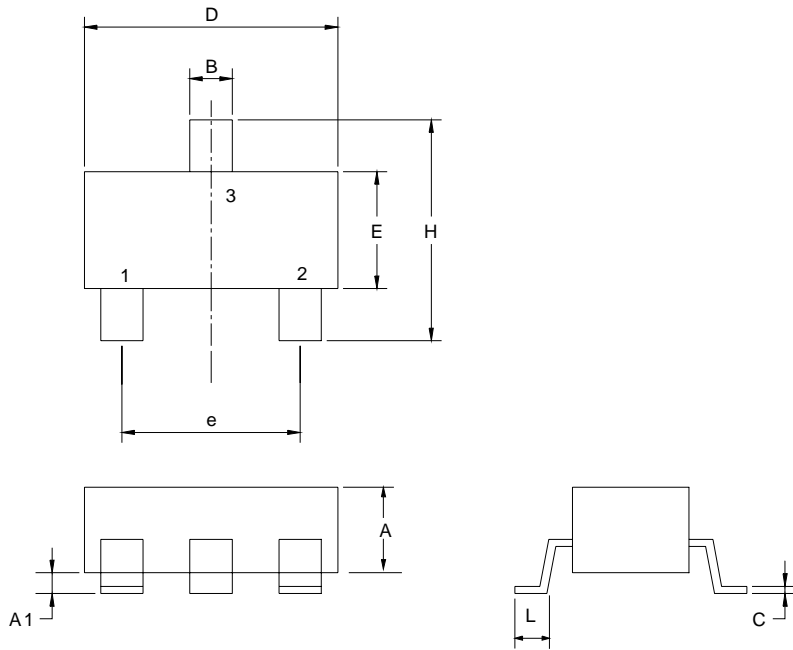
Gate Threshold Voltage





**Packaging Information**

SOT-23



Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.00	1.30	0.039	0.051
A1	0.00	0.10	0.000	0.004
B	0.35	0.51	0.014	0.020
C	0.10	0.25	0.004	0.010
D	2.70	3.10	0.106	0.122
E	1.40	1.80	0.055	0.071
e	1.90/2.1 BSC.		0.075/0.083 BSC.	
H	2.40	3.00	0.094	0.118
L	0.37		0.015	