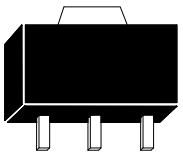
N-CHANNEL MOSFET

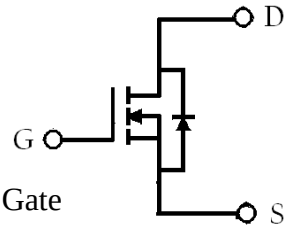


G D S

SOT-89

Features:

- Low on-resistance
- High speed switching
- Low-voltage drive
- Easily designed drive circuits
- Pb-free lead plating and halogen-free package



G：Gate
S：Source
D：Drain

BV_{DSS}	**30V**
I_D	**6.8A**
R_{DSON}@V_{GS}=10V, I_D=5.8A	**25mΩ (typ)**
R_{DSON}@V_{GS}=4.5V, I_D=5A	**27mΩ (typ)**

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	±12	V
Continuous Drain Current @V_{GS}=10V, T_A=25°C	I_D	6.8	A
Continuous Drain Current @V_{GS}=10V, T_A=100°C	I_D	4.3	A
Pulsed Drain Current	I_{DM}	30 *1	A
Total Power Dissipation	P_D	2 *2	W
Operating Junction and Storage Temperature Range	Tj; Tstg	-55~+150	°C

Note : *1. Pulse Width ≤ 300μs, Duty cycle ≤2%
*2. When the device is surface mounted on 1 in² copper pad of FR-4 board with 2 oz. copper, t≤10s.

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient	Rth,ja	62.5	°C/W

Note : Surface mounted on 1 in² copper pad of FR-4 board with 2 oz. copper, t≤10s.

Electrical Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}*	30	-	-	V	V_{GS}=0, I_D=10μA
$V_{GS(th)}$	0.5	0.8	1.2	V	V_{DS}=V_{GS}, I_D=250μA
I_{GSS}	-	-	±100	nA	V_{GS}=±12V, V_{DS}=0
I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0
$R_{DS(ON)}$*	-	25	28	mΩ	V_{GS}=10V, I_D=5.8A
	-	27	33		V_{GS}=4.5V, I_D=5A
	-		45		V_{GS}=2.5V, I_D=4A
	-		85		V_{GS}=1.8V, I_D=1A
G_{FS}	-	11	-	S	V_{DS}=5V, I_D=5A
Dynamic					
C_{iss}	-	1052	-	pF	V_{DS}=15V, V_{GS}=0, f=1MHz
C_{oss}	-	57	-		
C_{rss}	-	54	-		
$td_{(ON)}$	-	5	-	ns	V_{DS}=15V, I_D=5.8A, V_{GS}=10V, R_{GEN}=3Ω
tr	-	2.4	-		
$td_{(OFF)}$	-	16	-		
tf	-	5	-		
Qg	-	9.7	-	nC	V_{DS}=15V, I_D=5.8A, V_{GS}=4.5V
Qgs	-	2.7	-		
Qgd	-	4.1	-		
Source-Drain Diode					
*I_S	-	-	1.2	A	
*V_{SD}	-	-	1.2	V	V_{GS}=0V, I_S=1.2A
*trr	-	18	-	ns	I_F=6.8A, dI_F/dt=100A/μs
*Qrr	-	10	-	nC	

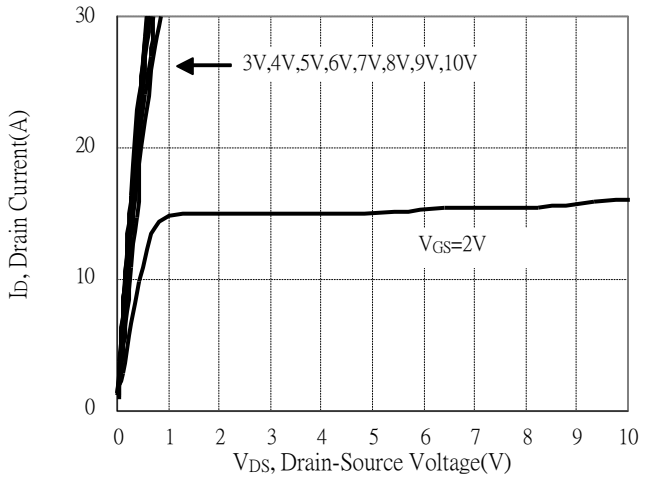
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

Ordering Information

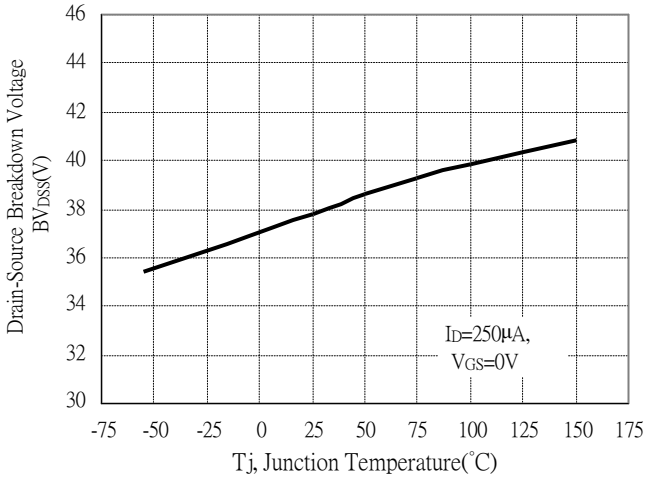
Device	Package	Shipping
KWN2306AM3	SOT-89 (Pb-free lead plating & halogen-free package)	1000 pcs / Tape & Reel

Typical Characteristics

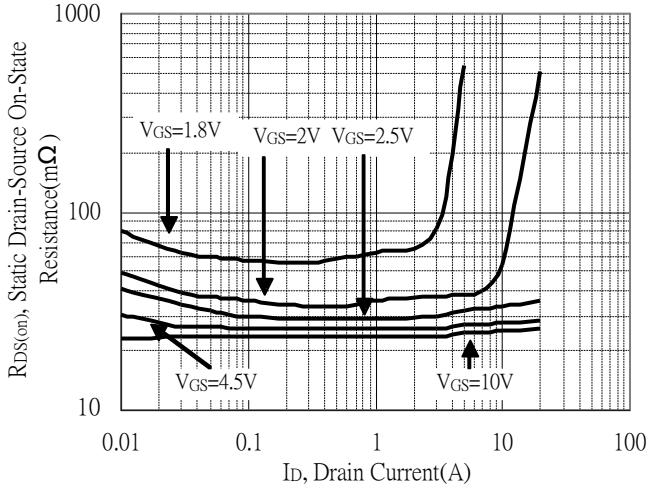
Typical Output Characteristics



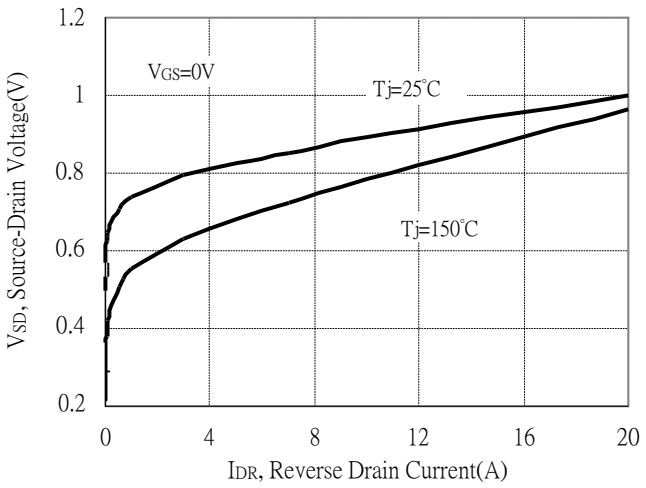
Brekdown Voltage vs Ambient Temperature



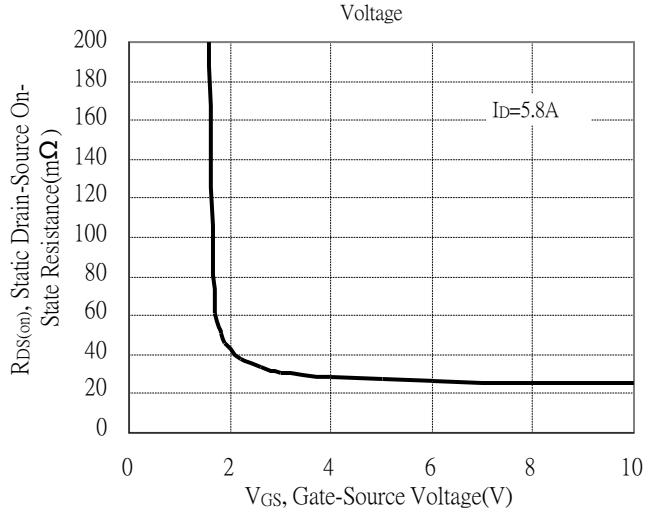
Static Drain-Source On-State resistance vs Drain Current



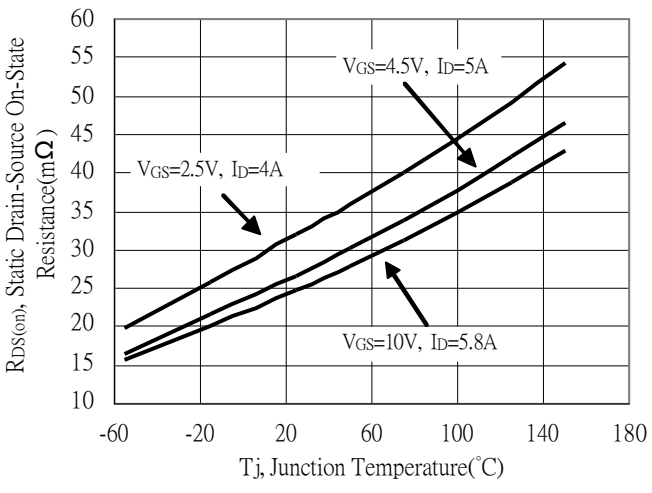
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

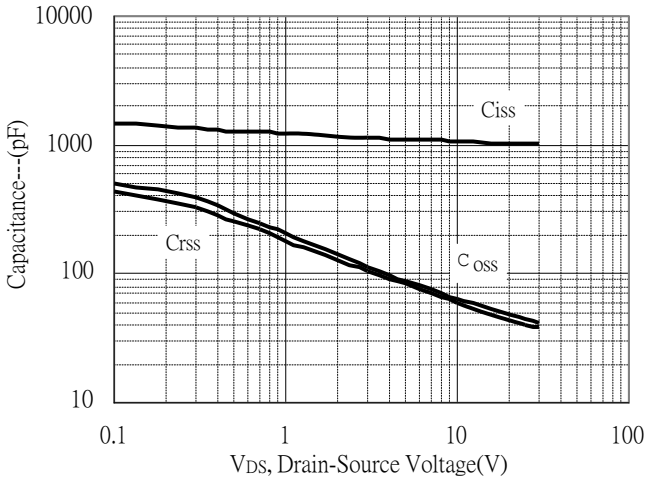


Drain-Source On-State Resistance vs Junction Tempearture

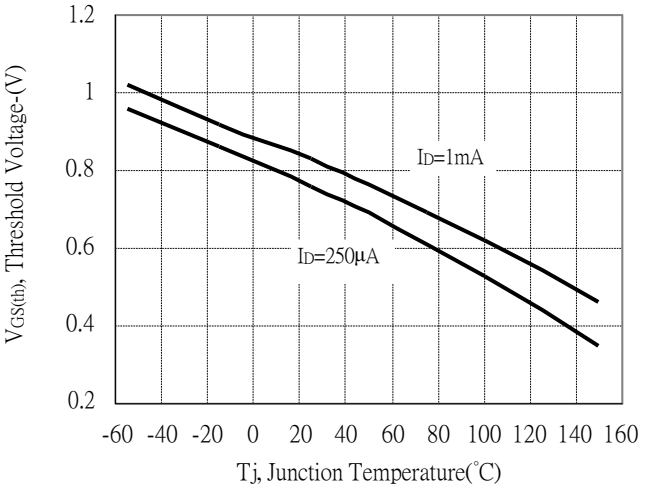


Typical Characteristics(Cont.)

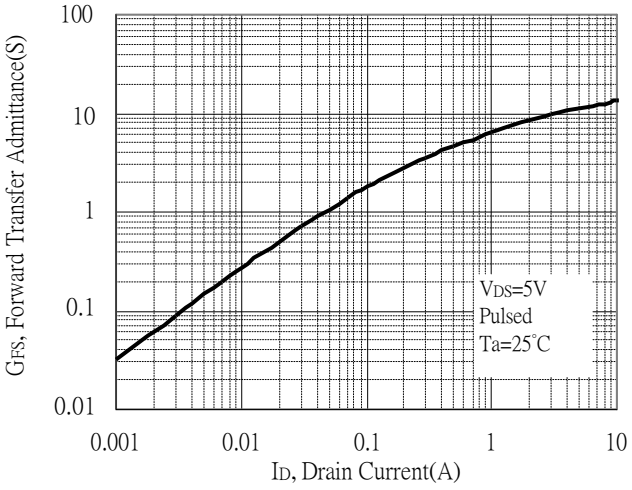
Capacitance vs Drain-to-Source Voltage



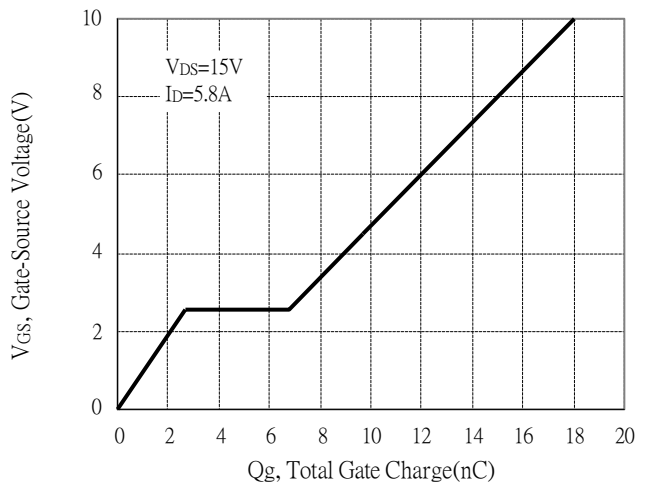
Threshold Voltage vs Junction Tempearture



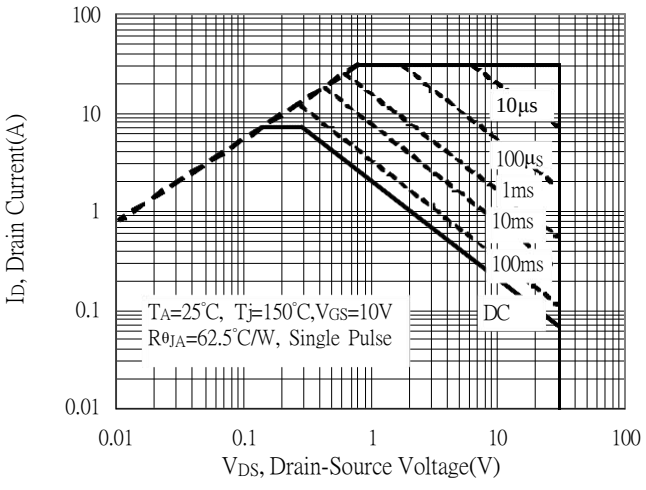
Forward Transfer Admittance vs Drain Current



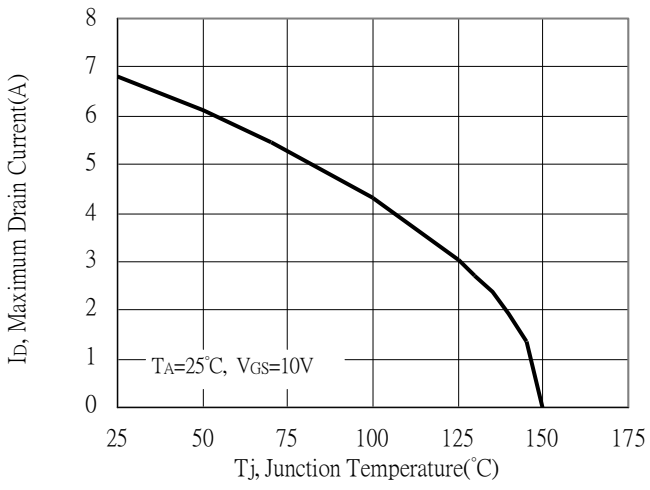
Gate Charge Characteristics



Maximum Safe Operating Area

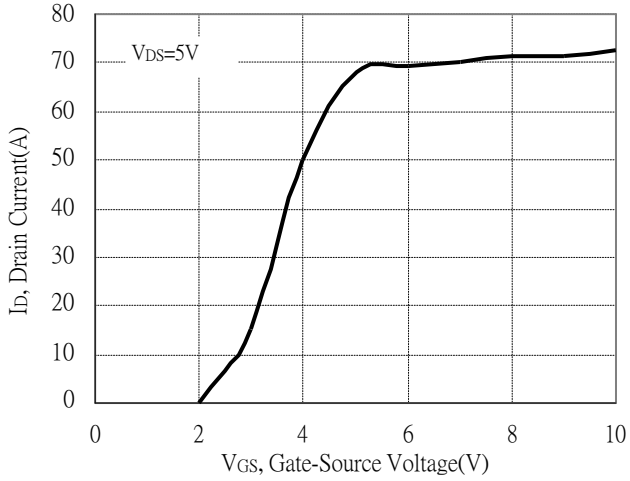


Maximum Drain Current vs JunctionTemperature

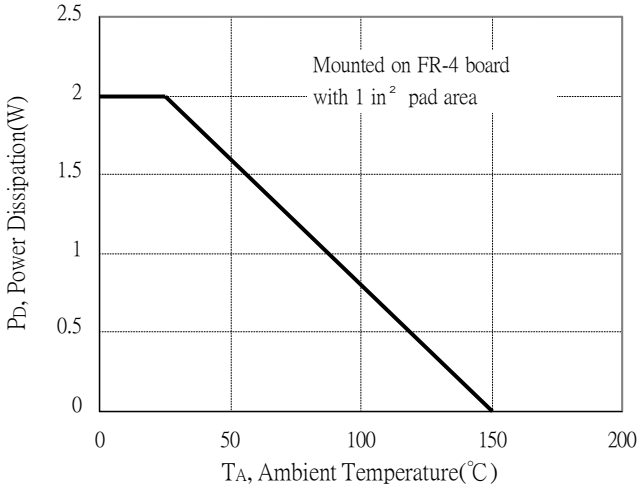


Typical Characteristics(Cont.)

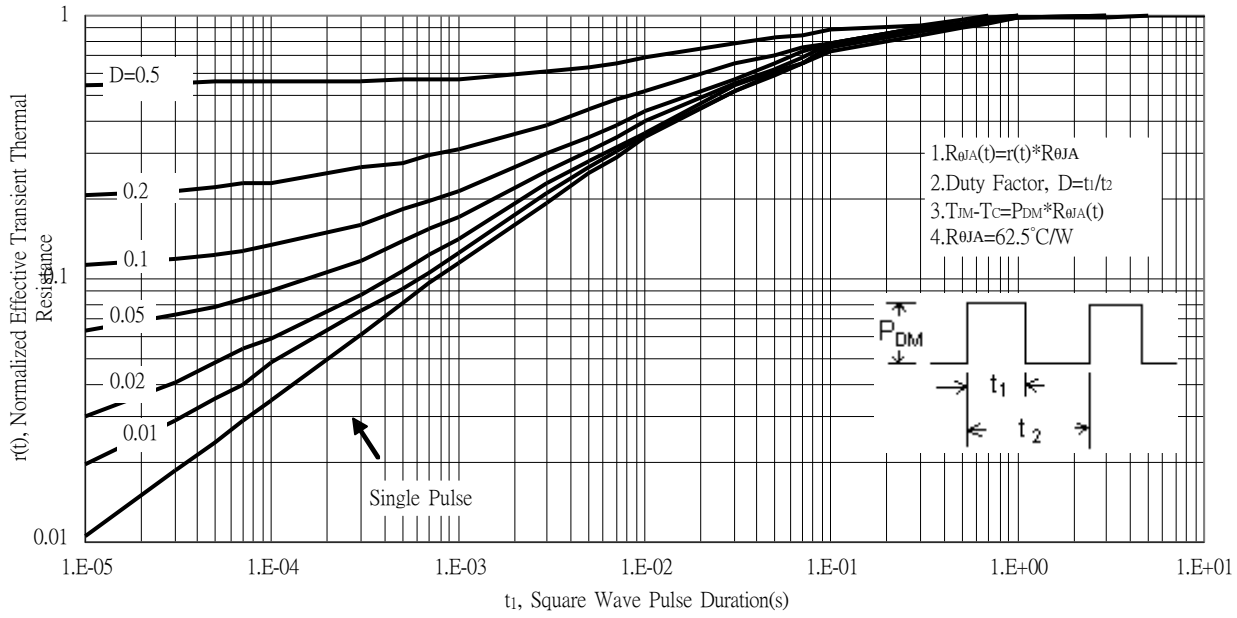
Typical Transfer Characteristics



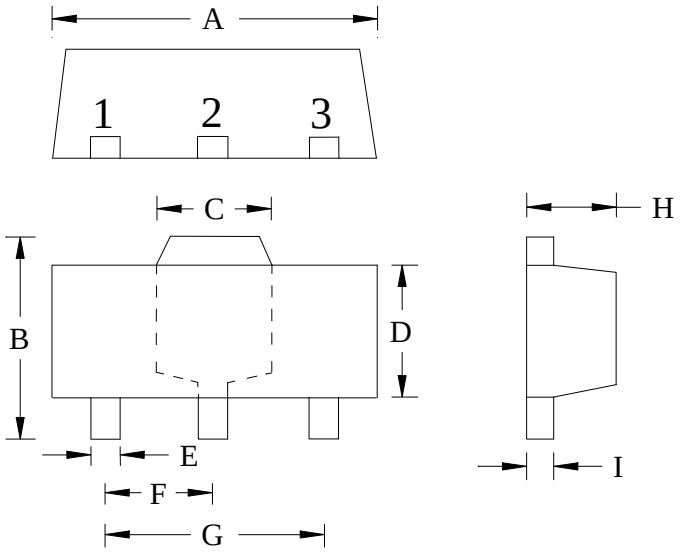
Power Derating Curve



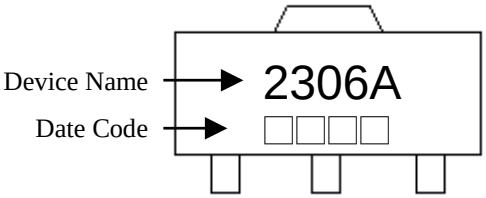
Transient Thermal Response Curves



SOT-89 Dimension



Marking:



Style: Pin 1. Gate 2. Drain 3. Source

3-Lead SOT-89 Plastic
Surface Mounted Package
Code: M3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0583	0.0598	1.48	1.527
B	0.1594	0.1673	4.05	4.25	G	0.1165	0.1197	2.96	3.04
C	0.0591	0.0663	1.50	1.70	H	0.0551	0.0630	1.40	1.60
D	0.0945	0.1024	2.40	2.60	I	0.0138	0.0161	0.35	0.41
E	0.01417	0.0201	0.36	0.51					