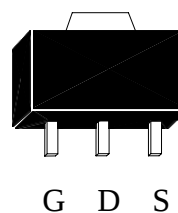


60V P-Channel Enhancement Mode MOSFET

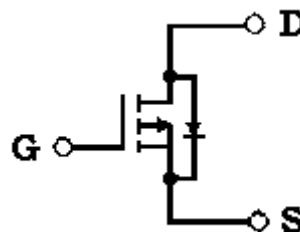
Features:

- Single Drive Requirement
- Ultra High Speed Switching
- Pb-free lead plating and halogen-free package

SOT-89



BVDSS	-60V
ID@ TA=25°C, VGS=-10V	-4A
RDSON@VGS=-10V, ID=-4A	81.5mΩ (typ.)
RDSON@VGS=-4.5V, ID=-3A	93.2mΩ (typ.)



G : Gate
S : Source
D : Drain

Ordering Information

Device	Package	Shipping
KM2311M3	SOT-89 (Pb-free lead plating and halogen-free package)	1000 pcs / tape & reel

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	-60	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current @ TA=25°C, V _{GS} =-10V	I _D	-4	A
Continuous Drain Current @ TA=70°C, V _{GS} =-10V		-3.2	
Pulsed Drain Current	I _{DM}	-20 *1, 3	
Total Power Dissipation (TA=25°C)	P _D	2 *2	W
Linear Derating Factor		0.02	W/°C
Operating Junction and Storage Temperature	T _j , T _{stg}	-55~+150	°C

Note : *1. Pulse width limited by maximum junction temperature

*2. Surface mounted on 1 in² copper pad of FR-4 board

*3. Pulse width≤300μs, duty cycle≤2%

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-ambient, max	R _{th,j-a}	62.5*	°C/W

* Surface mounted on 1 in² copper pad of FR-4 board; 270 °C/W when mounted on min. copper pad

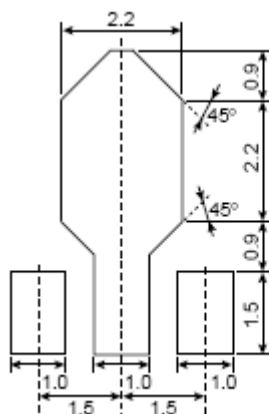
Electrical Characteristics (Tj=25°C, unless otherwise noted)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-60	-	-	V	V _{GS} =0V, I _D =-250μA
ΔBV _{DSS} /ΔT _j	-	-0.04	-	V/°C	Reference to 25°C, I _D =-1mA
V _{GS(th)}	-1	-1.8	-2.5	V	V _{DS} =V _{GS} , I _D =-250μA
G _{FS}	-	5.8	-	S	V _{DS} =-5V, I _D =-3A
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0V
I _{DSS}	-	-	-1	μA	V _{DS} =-48V, V _{GS} =0V
	-	-	-25		V _{DS} =-48V, V _{GS} =0V (T _j =70°C)
*R _{DS(ON)}	-	81.5	95	mΩ	I _D =-4A, V _{GS} =-10V
	-	93.2	130		I _D =-3A, V _{GS} =-4.5V
Dynamic					
C _{iss}	-	1026	-	pF	V _{DS} =-30V, V _{GS} =0V, f=1MHz
C _{oss}	-	48	-		
C _{rss}	-	37	-		
*t _{d(ON)}	-	6.4	-	ns	V _{DS} =-30V, I _D =-1A, V _{GS} =-10V, R _G =6Ω
*t _r	-	7.2	-		
*t _{d(OFF)}	-	73.6	-		
*t _f	-	44.2	-		

*Qg	-	19.2	-	nC	V _{DS} =-30V, I _D =-3.5A, V _{GS} =-10V
*Qgs	-	3.3	-		
*Qgd	-	3.2	-		
Rg	-	20	-	Ω	f=1MHz
Source-Drain Diode					
*V _{SD}	-	-0.78	-1.2	V	V _{GS} =0V, I _S =-2A
*trr	-	12	-	ns	I _F =-2A, V _{GS} =0V, dI _F /dt=100A/μs
*Qrr	-	7	-	nC	

*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

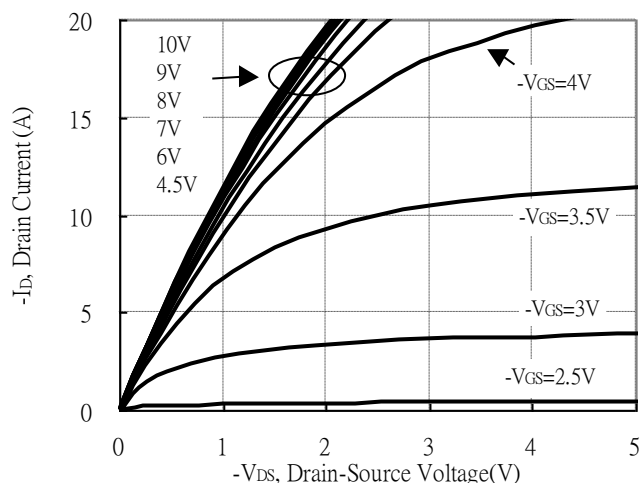
Recommended soldering footprint



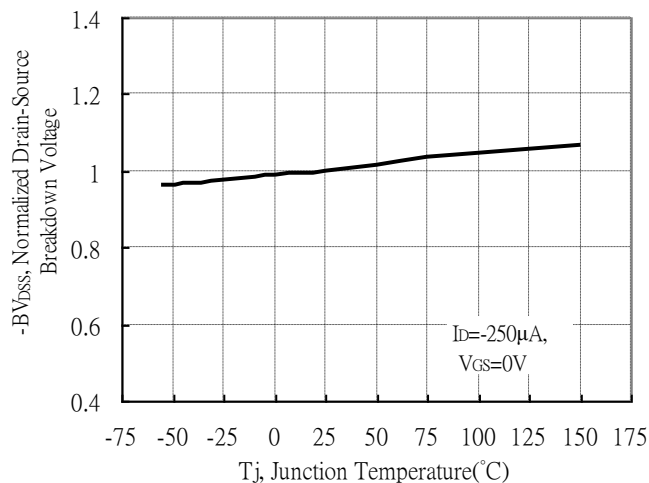
unit : mm

Typical Characteristics

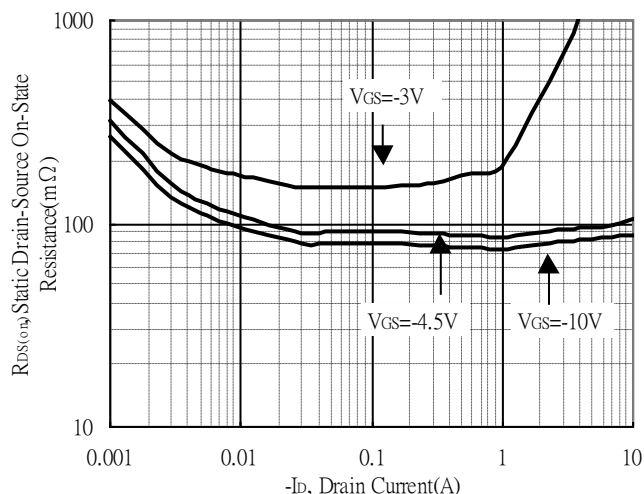
Typical Output Characteristics



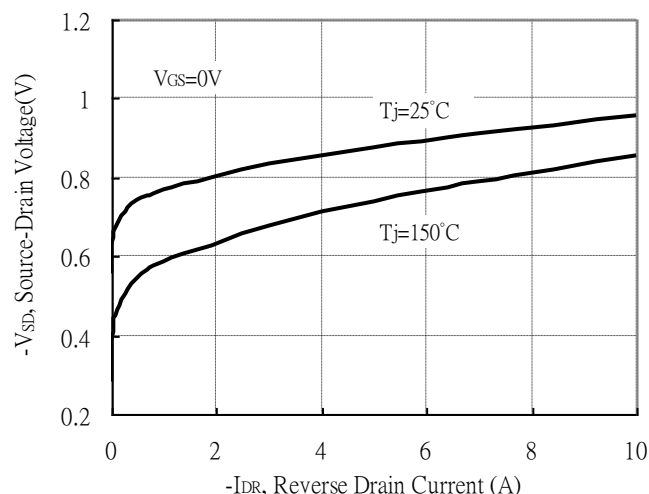
Breakdown Voltage vs Ambient Temperature



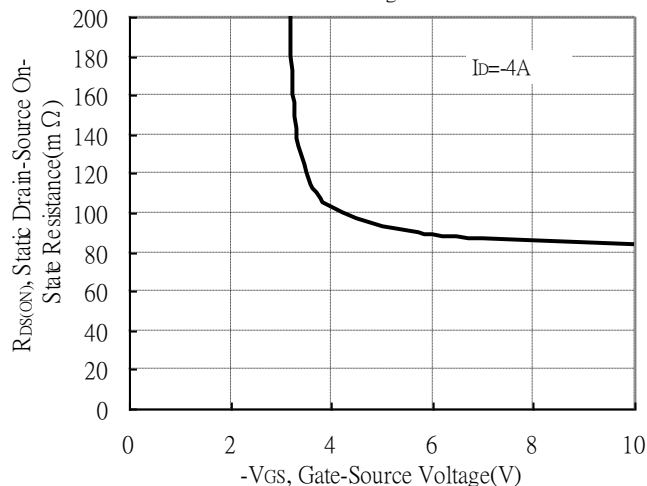
Static Drain-Source On-State resistance vs Drain Current



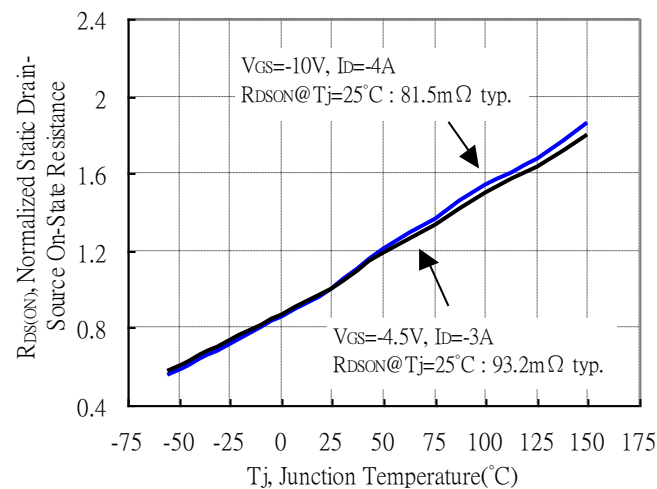
Reverse Drain Current vs Source-Drain Voltage



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

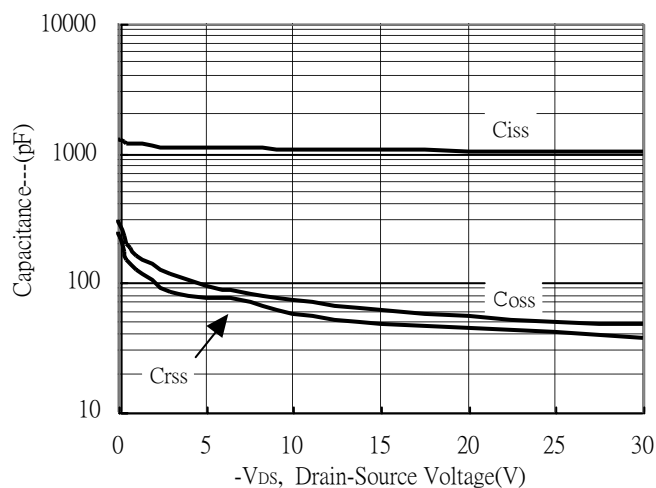


Drain-Source On-State Resistance vs Junction Temperature

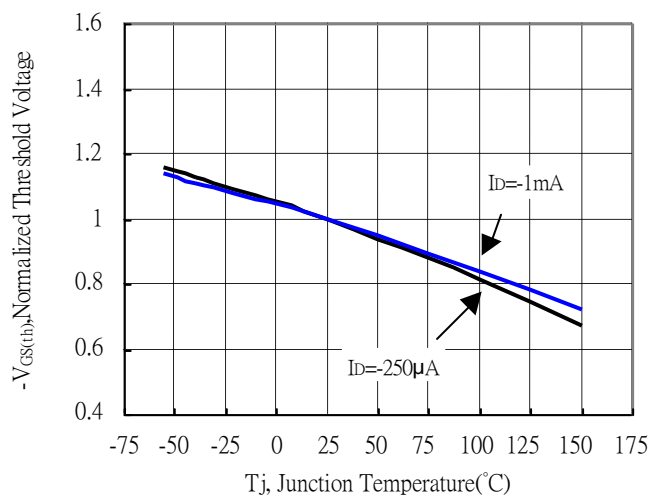


Typical Characteristics(Cont.)

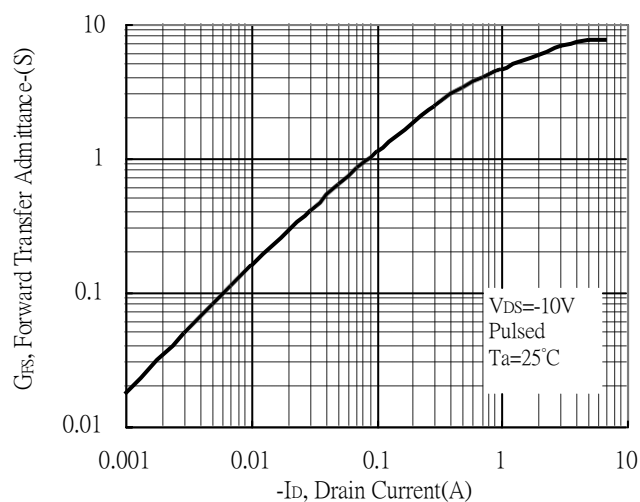
Capacitance vs Drain-to-Source Voltage



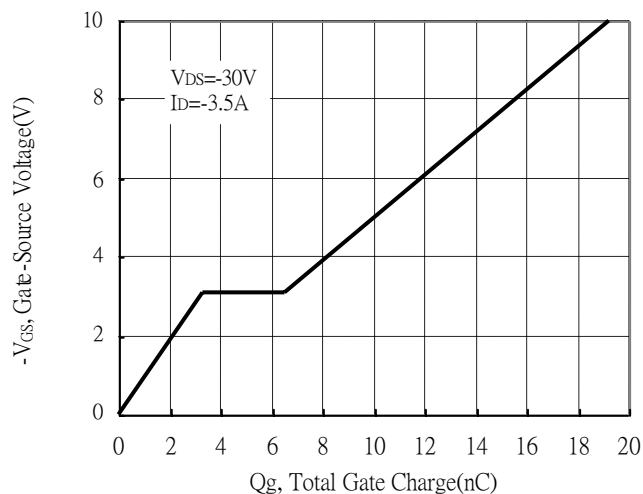
Threshold Voltage vs Junction Temperature



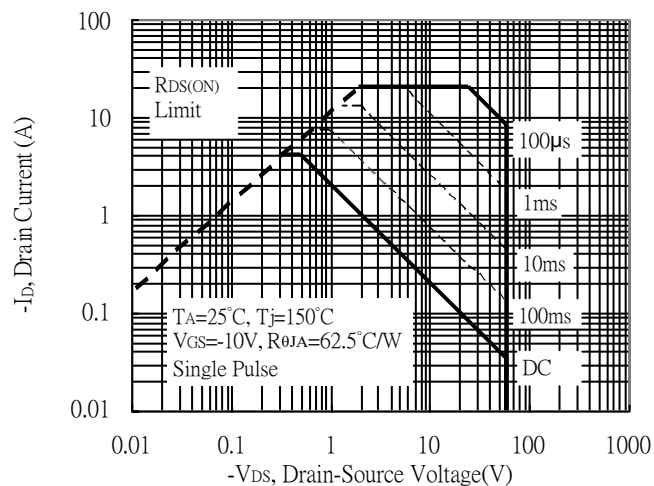
Forward Transfer Admittance vs Drain Current



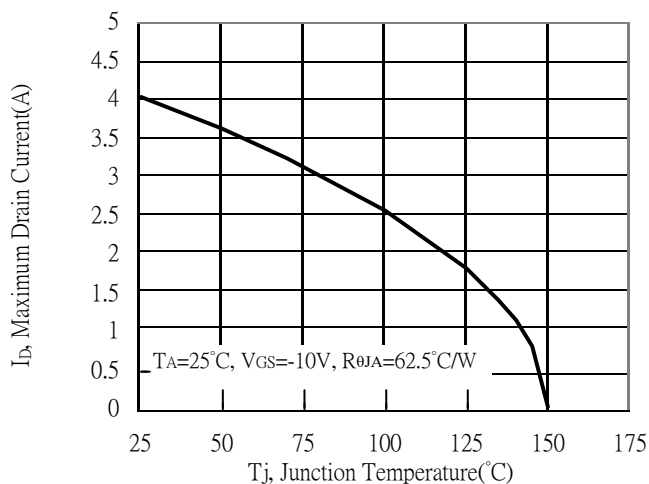
Gate Charge Characteristics



Maximum Safe Operating Area

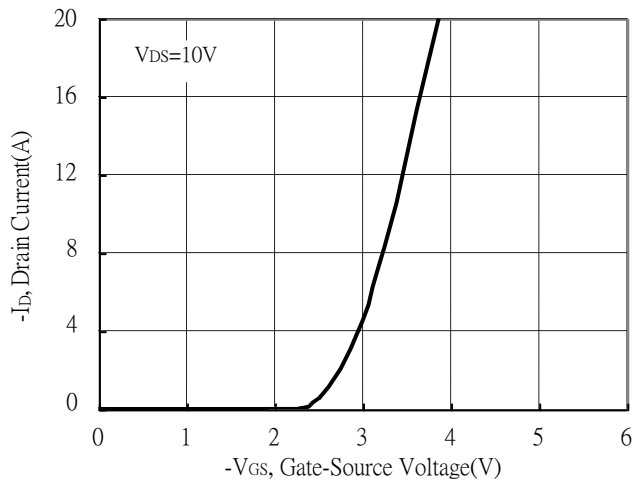


Maximum Drain Current vs Junction Temperature

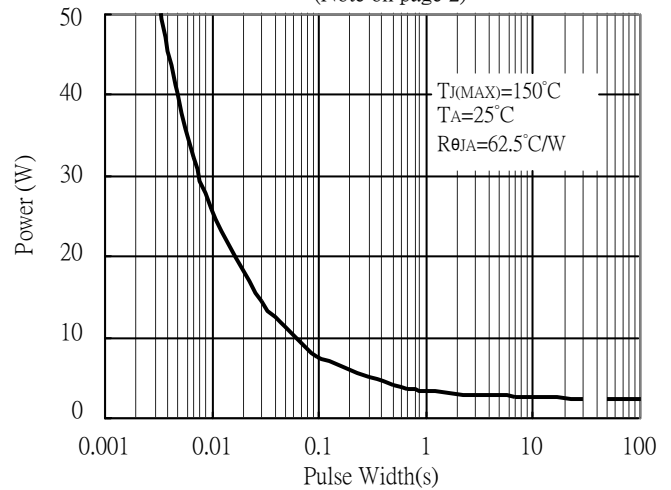


Typical Characteristics(Cont.)

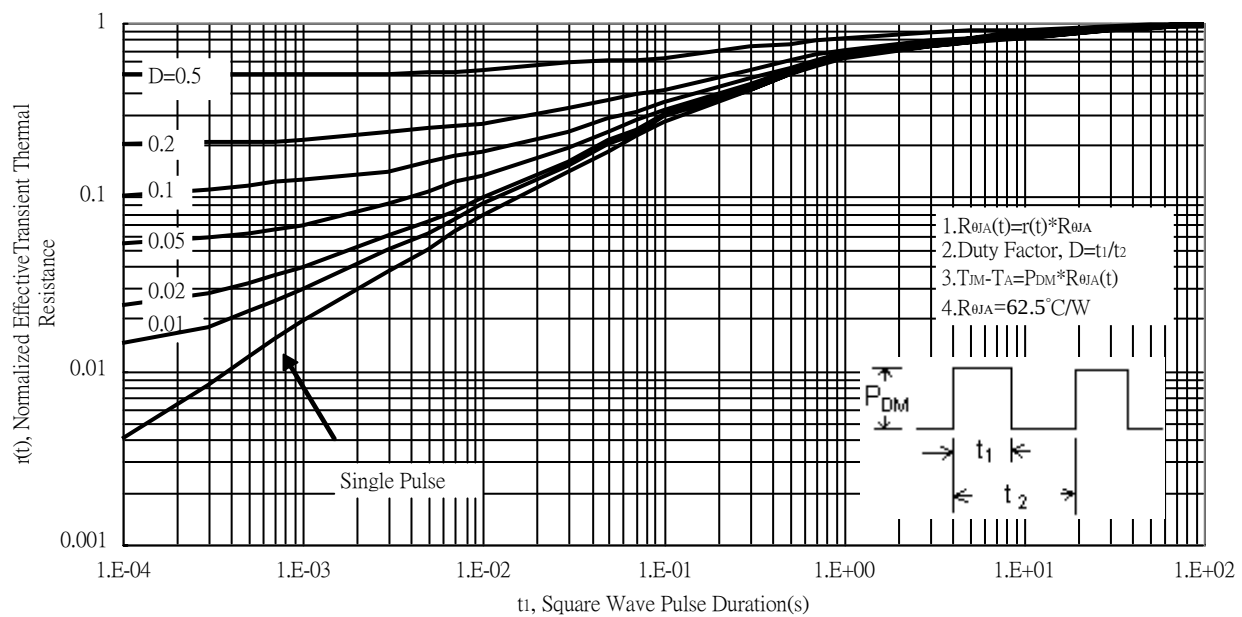
Typical Transfer Characteristics



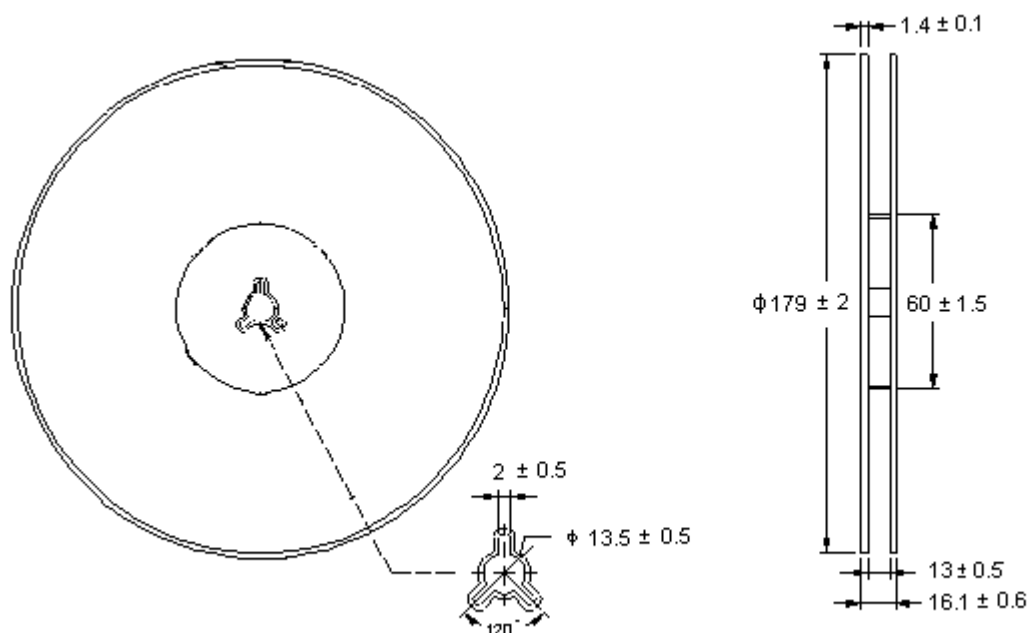
Single Pulse Power Rating, Junction to Ambient
 (Note on page 2)



Transient Thermal Response Curves

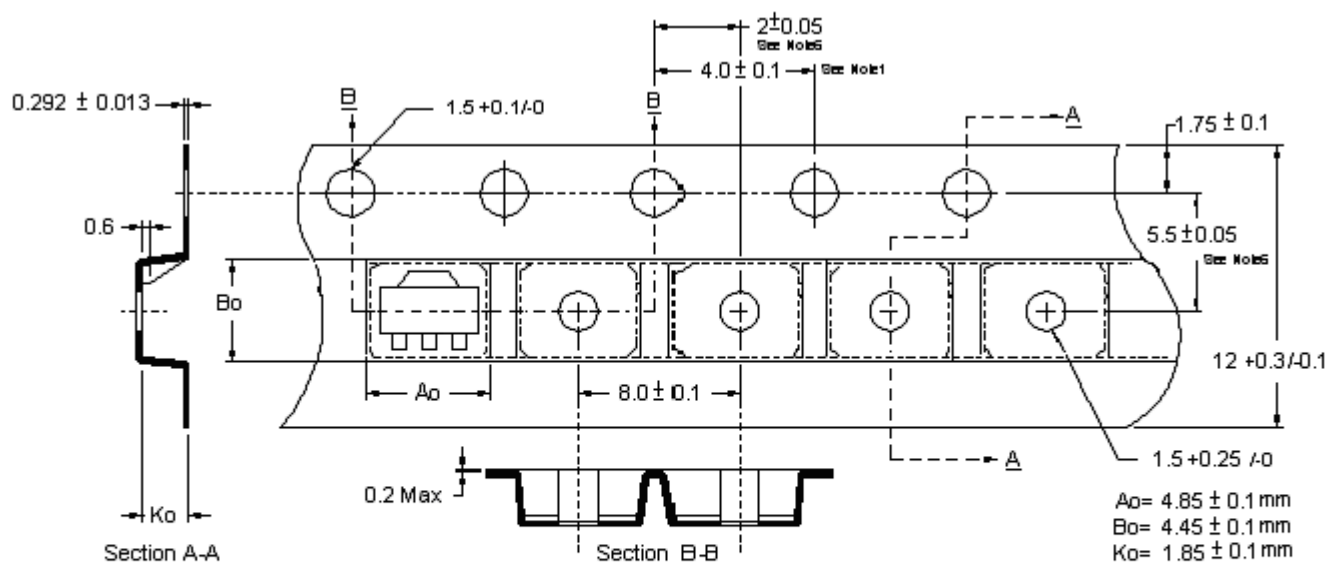


Reel Dimension

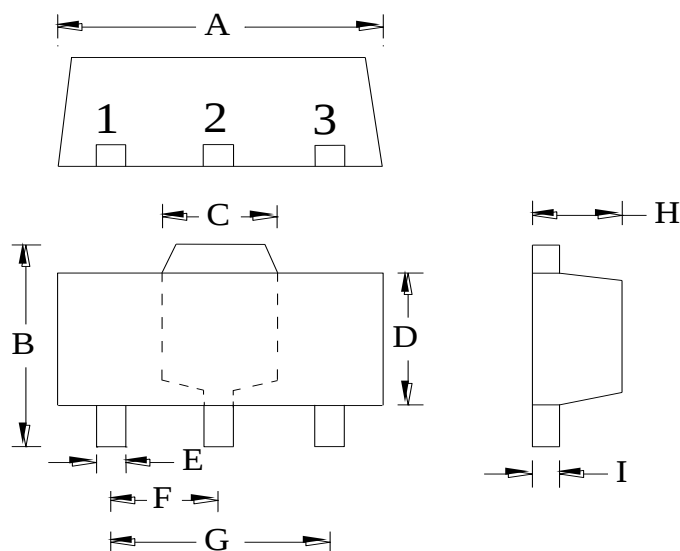


Unit: millimeter

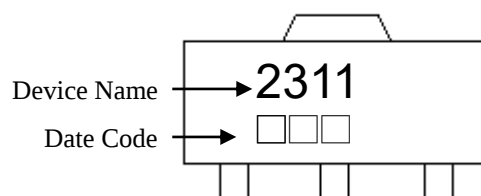
Carrier Tape Dimension



SOT-89 Dimension



Marking:



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

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

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0591	TYP	1.50	TYP
B	0.1551	0.1673	3.94	4.25	G	0.1181	TYP	3.00	TYP
C	0.0610	REF	1.55	REF	H	0.0551	0.0630	1.40	1.60
D	0.0906	0.1024	2.30	2.60	I	0.0138	0.0173	0.35	0.44
E	0.0126	0.0205	0.32	0.52					