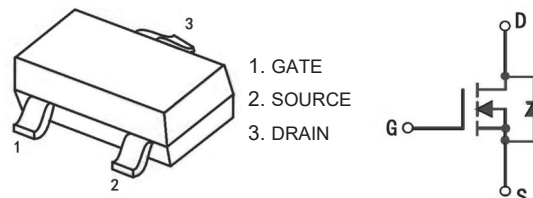


N-Channel Plastic-Encapsulate MOSFET
PRIMARY CHARACTERISTICS

BV_{DSS}	$R_{DS(on)MAX}$	I_D
100V	$234m\Omega @ V_{GS}=10V$	2A
	$278m\Omega @ V_{GS}=4.5V$	

**SCHEMATIC DIAGRAM
SOT-23 PACKAGE**

APPLICATIONS

- Load/Power Switching
- Interfacing Switching

MECHANICAL DATA

- Case : Molded plastic, SOT-23
- Polarity : Shown above
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Epoxy : UL94-V0 rated flame retardant

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	2	A
Pulsed Drain Current	$I_{DM}^{(1)}$	8	A
Maximum Power Dissipation	P_D	1.0	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}^{(2)}$	125	$^\circ\text{C/W}$
Operation Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ\text{C}$



N-Channel Plastic-Encapsulate MOSFET

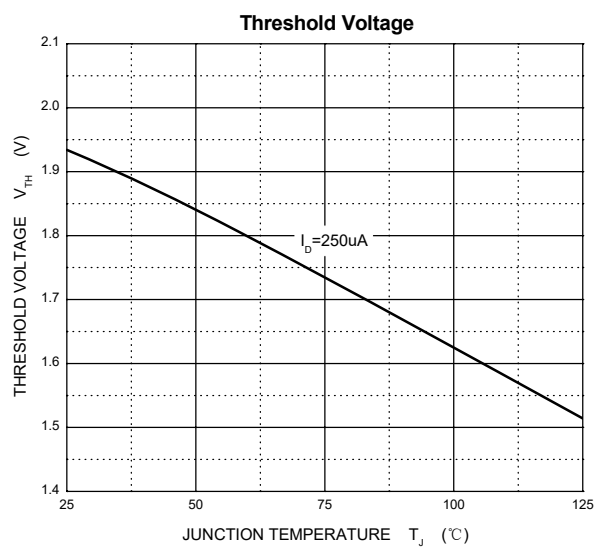
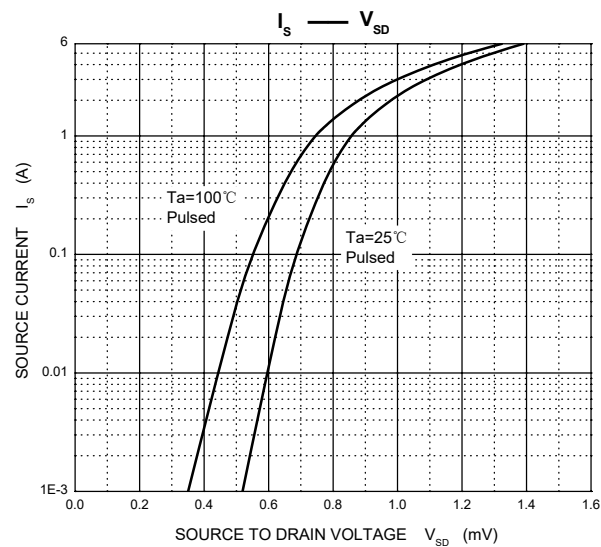
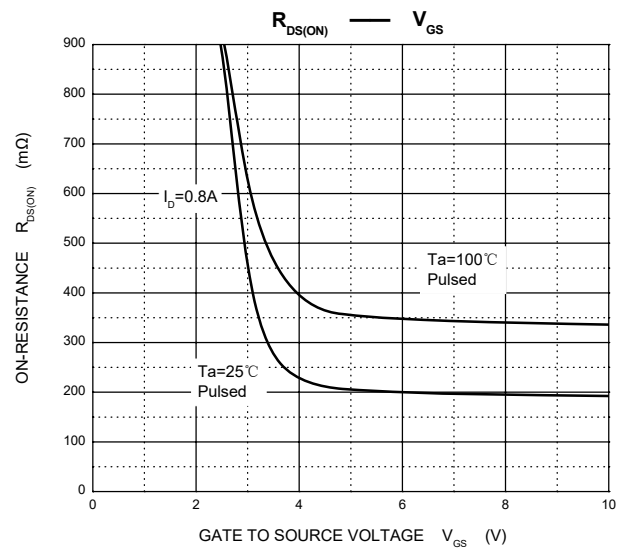
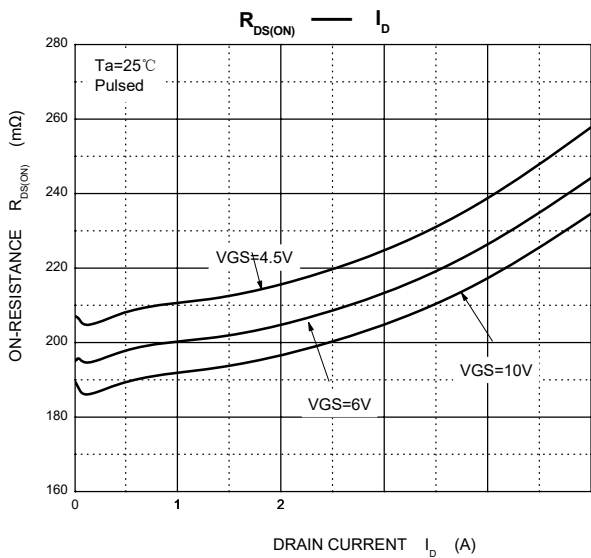
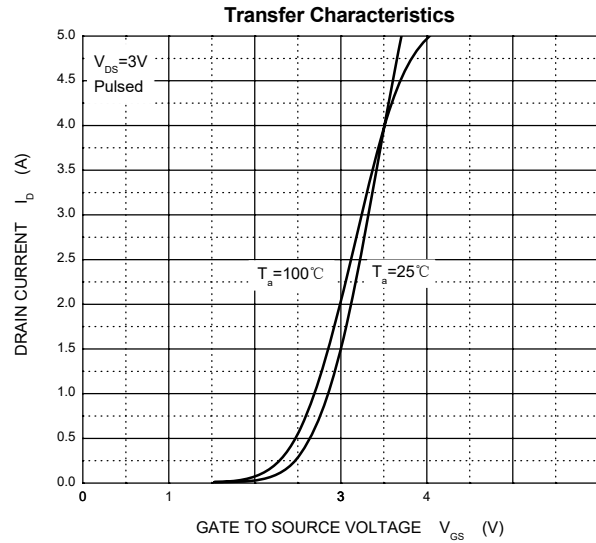
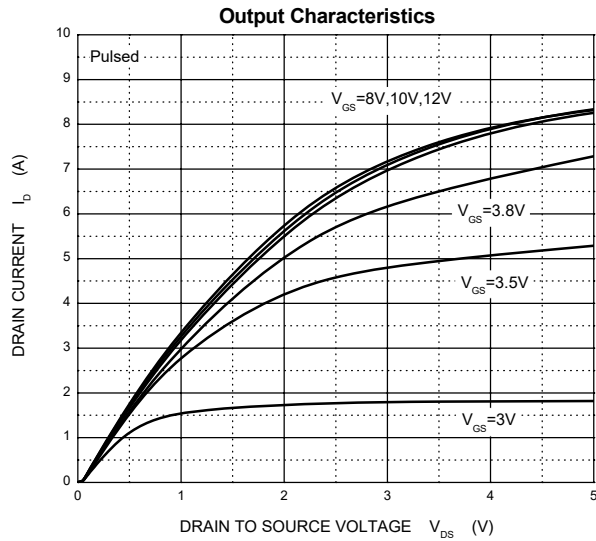
MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 100V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage ^③	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.2		2.8	V
Drain-source on-resistance ^③	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 1.5A$		195	234	m Ω
		$V_{GS} = 6V, I_D = 1A$		200	267	m Ω
		$V_{GS} = 4.5V, I_D = 0.5A$		208	278	m Ω
Forward tranconductance	g_{FS}	$V_{DS} = 20V, I_D = 1.5A$		2		S
Diode forward voltage ^③	V_{SD}	$I_S = 1.3A, V_{GS} = 0V$			1.2	V
DYNAMIC PARAMETERS^④						
Input Capacitance	C_{iss}	$V_{DS} = 50V, V_{GS} = 0V, f = 1MHz$		190		pF
Output Capacitance	C_{oss}			22		pF
Reverse Transfer Capacitance	C_{rss}			13		pF
Gate Resistance	R_g	$F = 1MHz$	0.3		2.8	Ω
SWITCHING PARAMETERS^④						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 50V, V_{GEN} = 4.5V$ $R_L = 39\Omega, R_G = 1\Omega, I_D = 1.3A$			45	ns
Turn-on rise time	t_r				39	ns
Turn-off delay time	$t_{d(off)}$				26	ns
Turn-off fall time	t_f				20	ns
Total Gate Charge	Q_g	$V_{DS} = 50V, V_{GS} = 4.5V, I_D = 1.6A$			5.8	nC
Gate-Source Charge	Q_{gs}			0.75		nC
Gate-Drain Charge	Q_{gd}			1.4		nC

Notes:

- $P_W \leq 10\mu s$, Duty cycle $\leq 1\%$.
- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in2 FR-4 board with 2oz. Copper, in a still air environment with $T_a = 25^\circ C$.
- Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production.

Typical Characteristics



N-Channel Plastic-Encapsulate MOSFET

Typical Performance Characteristics (cont.)

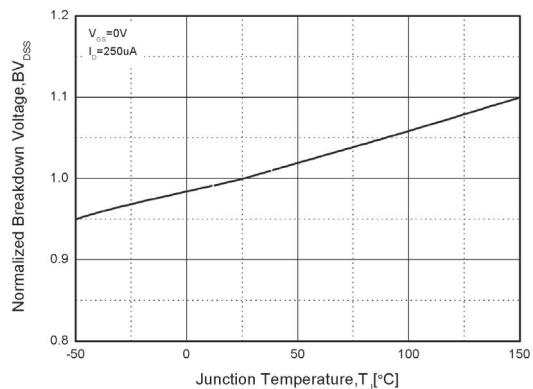


Figure7. Normalized Breakdown Voltage vs. Temperature

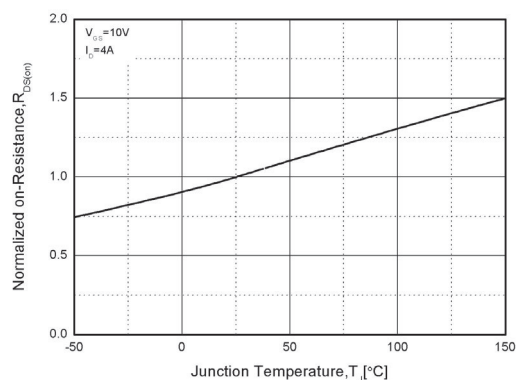


Figure8. Normalized on Resistance vs. Temperature

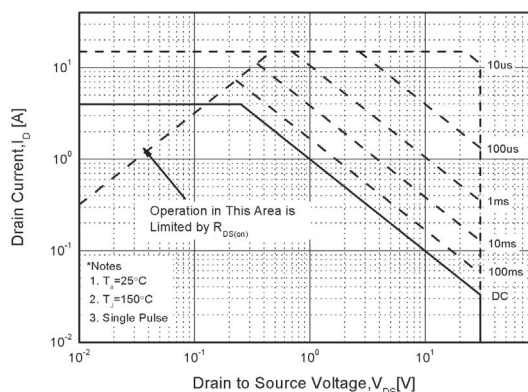


Figure9. Safe Operation Area

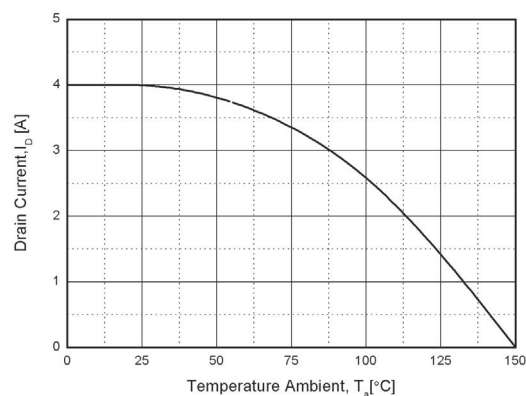


Figure10. Drain Current vs. Ambient Temperature

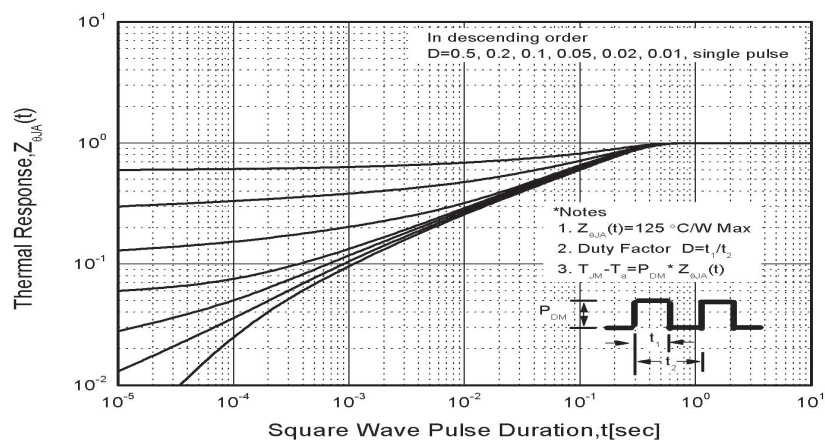
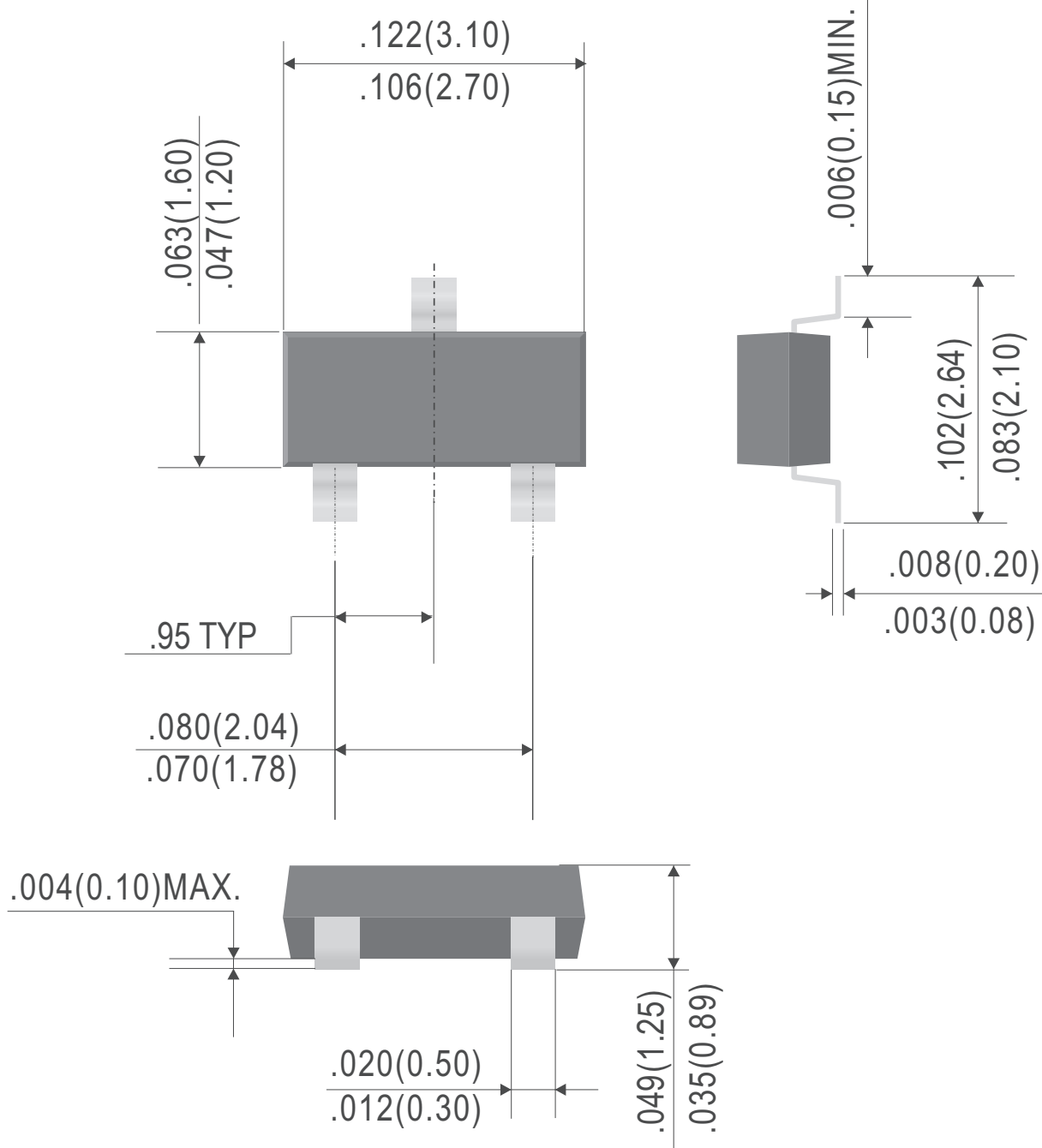


Figure11. Transient Thermal Response Curve



Outline Drawing

SOT-23



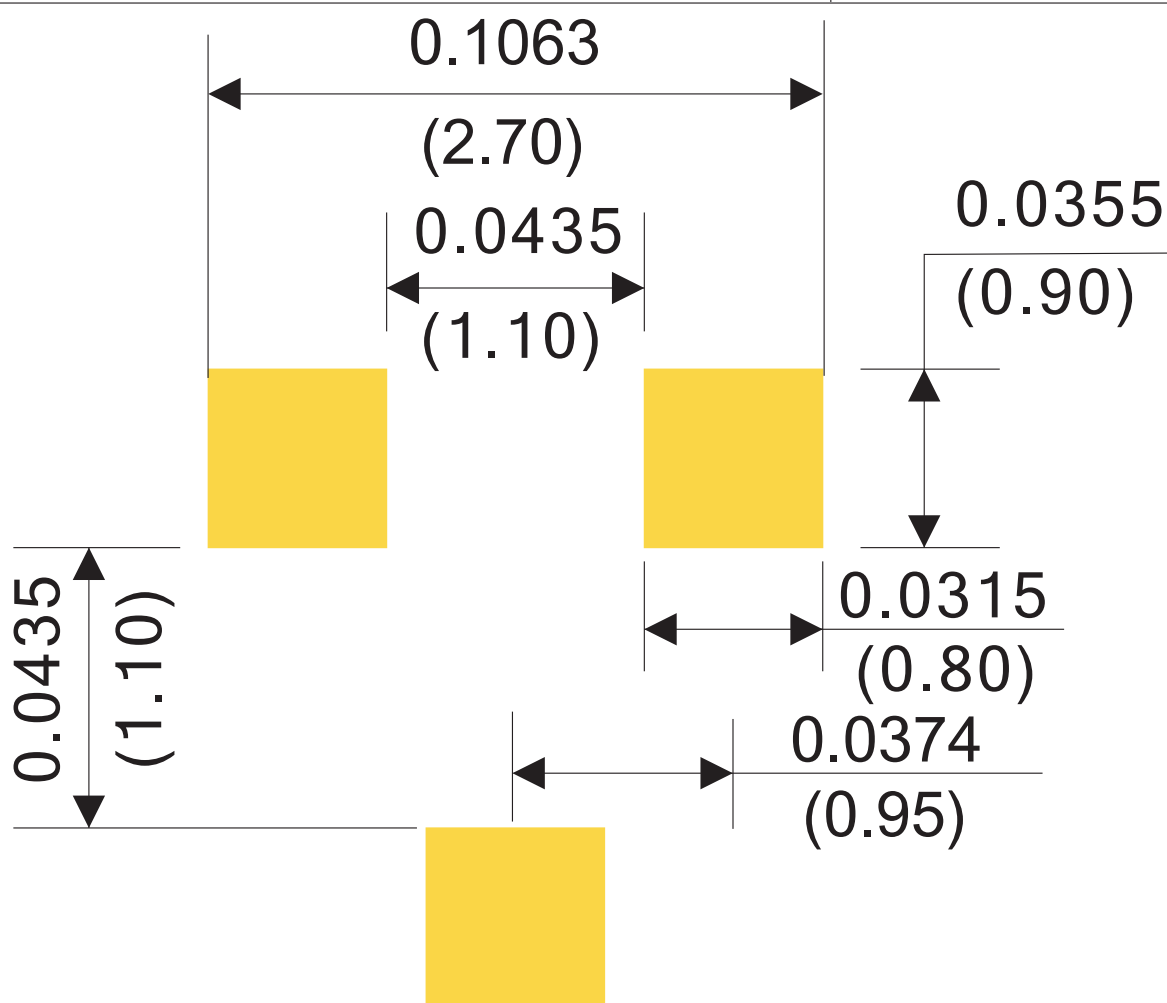
Dimensions in inches and (millimeters)

Rev.E



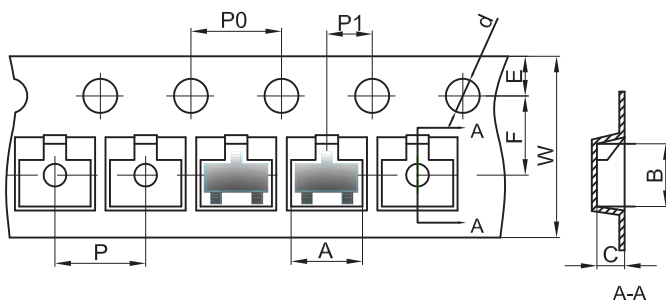
Suggested Soldering Pad Layout

SOT-23



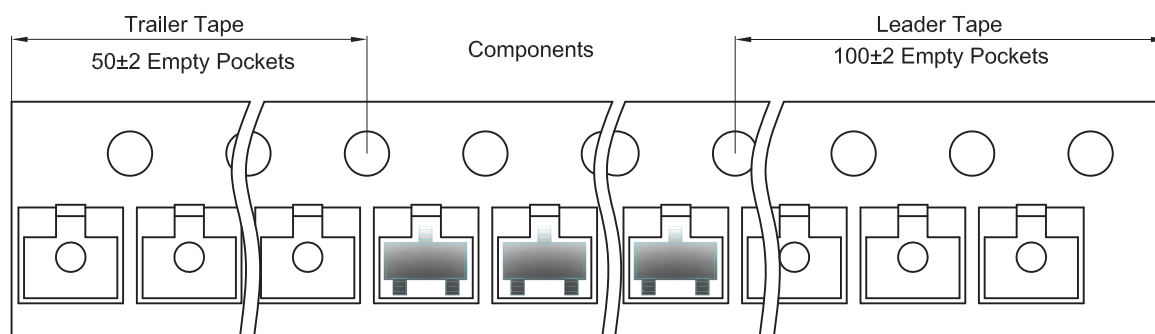
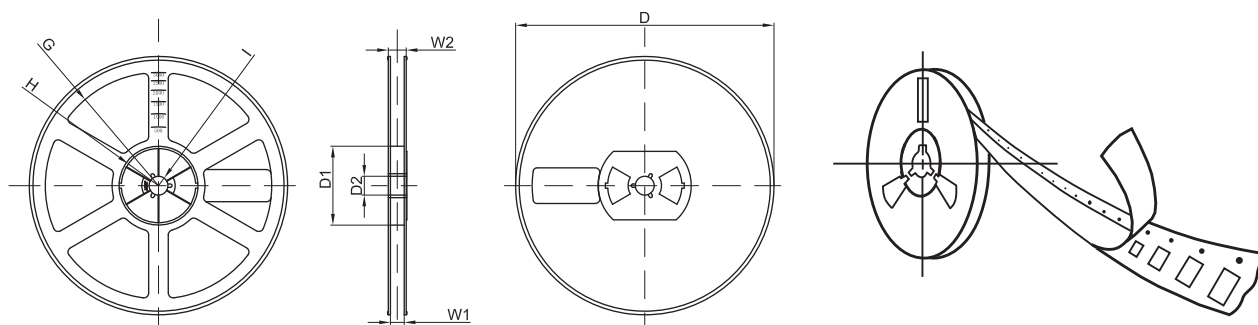
Dimensions in inches and (millimeters)

RevB

N-Channel Plastic-Encapsulate MOSFET
SOT-23 Embossed Carrier Tape

Packaging Description:

SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer

SOT-23 Reel


Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

Rev.A

N-Channel Plastic-Encapsulate MOSFET**Ordering Information:**

Device PN	Marking ⁽⁴⁾	Packing
SE2324-T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	S24	Tape&Reel: 3 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) Packing code suffix "G" for RoHS product : Packing code Suffix "H" for halogen free product
All materials and products supplied comply with the U.S. Toxic Substances Control Act statement, PBT Chemicals

(3) Willas brand abbreviation, Label Type does not display

(4) There may be additional marking, which relates to the lot trace code information (data code and vendor code), the logo or the environmental category on the device

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