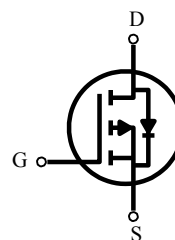
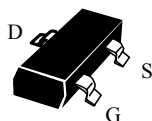


P-Channel High Density Trench MOSFET
PRODUCT SUMMARY

V_{DS}	I_D	$R_{DS(on)}$ (m Ω) Max
-30V	- 3.7A	70 @ $V_{GS} = -10V$
	- 3.0A	95 @ $V_{GS} = -4.5V$

FEATURES

- Super high dense cell trench design for low $R_{DS(on)}$.
- Rugged and reliable.
- Surface Mount package.

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	- 30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ^a @ $T_A = 25^{\circ}\text{C}$ -Pulse ^b	I_D	- 3.7	A
	I_{DM}	- 14	A
Drain-Source Diode Forward Current ^a	I_S	- 1.9	A
Maximum Power Dissipation ^a	P_D	1.25	W
		0.75	
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to 150	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient ^a	R_{thJA}	100	$^{\circ}\text{C/W}$
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Note :

a. Surface Mounted on FR4 Board , $t \leq 5\text{sec}$.

b. Pulse width limited by maximum junction temperature .

P-Channel High Density Trench MOSFET
ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = -250uA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24V , V _{GS} = 0V			-1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = -20V , V _{DS} = 0V			-100	nA
ON CHARACTERISTICS ^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250uA	-1	-1.5	-3	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = -10V , I _D = -3.7A		56	70	mΩ
		V _{GS} = -4.5V , I _D = -3.0A		73	95	
Forward Transconductance	g _{fs}	V _{DS} = -15V , I _D = -3.5A		10.2		S
DRAIN-SOURCE DIODE CHARACTERISTICS ^b						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V , I _S = -1.9A			-1.3	V
DYNAMIC CHARACTERISTICS ^c						
Input Capacitance	C _{ISS}	V _{DS} = -15V , V _{GS} = 0V f = 1.0MHz		490		pF
Output Capacitance	C _{OSS}			66		pF
Reverse Transfer Capacitance	C _{RSS}			53		pF
SWITCHING CHARACTERISTICS ^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -15V , I _D = -1A V _{GEN} = -10V R _L = 15 Ω R _{GEN} = 6 Ω		4.4		ns
Rise Time	t _r			2.2		ns
Turn-Off Delay Time	t _{D(OFF)}			22		ns
Fall Time	t _f			4.2		ns
Total Gate Charge	Q _g	V _{DS} = -15V I _D = -1A V _{GS} = -10V		10		nC
Gate-Source Charge	Q _{gs}			1.5		nC
Gate-Drain Charge	Q _{gd}			1.4		nC

Note :

b. Pulse Test : Pulse width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

c. Guaranteed by design, not subject to production testing.

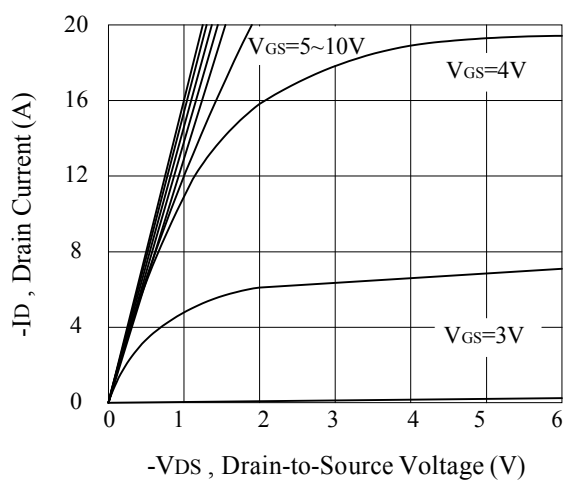
P-Channel High Density Trench MOSFET


Figure 1. Output Characteristics

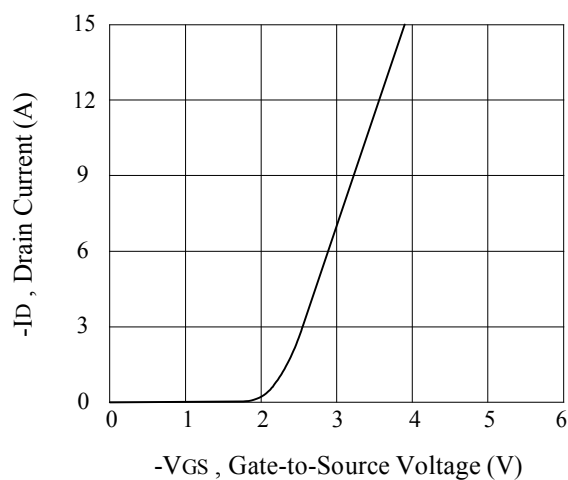


Figure 2. Transfer Characteristics

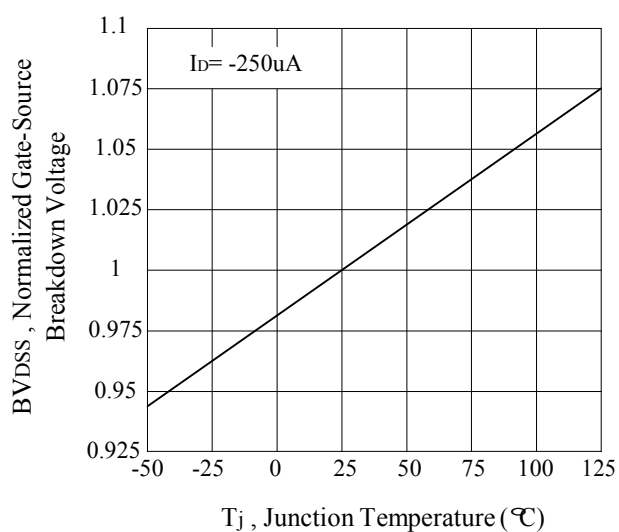


Figure 3. Breakdown Voltage Variation with Temperature

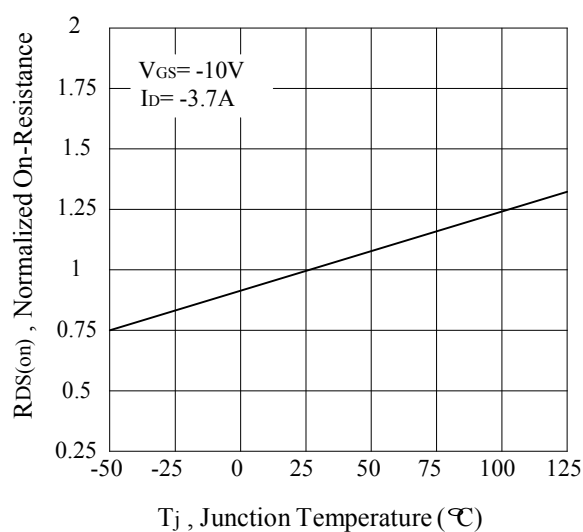


Figure 4. On-Resistance Variation with Temperature



P-Channel High Density Trench MOSFET

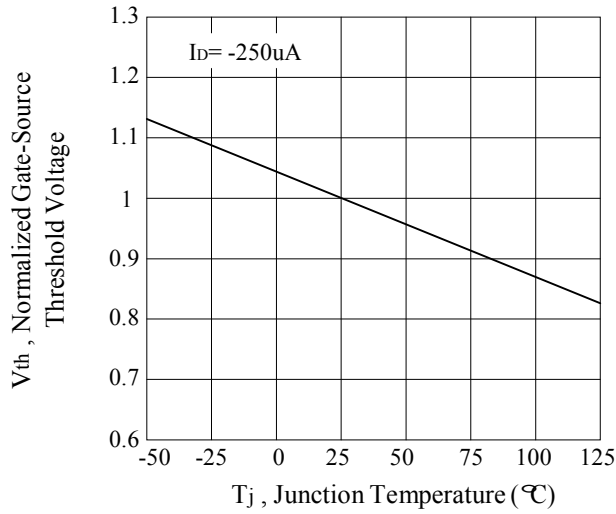


Figure 5. Gate Threshold Variation with Temperature

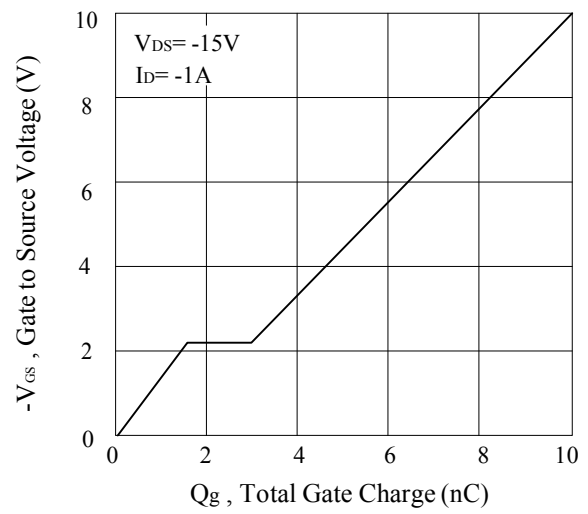


Figure 6. Gate Charge

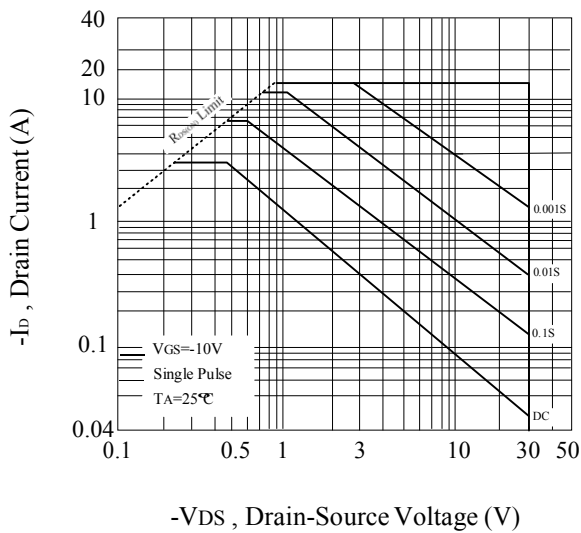


Figure 7. Maximum Safe Operating Area

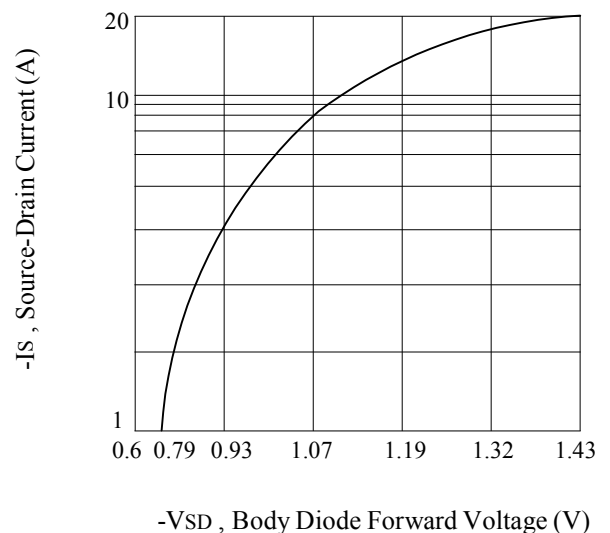


Figure 1. Body Diode Forward Voltage Variation with Source Current

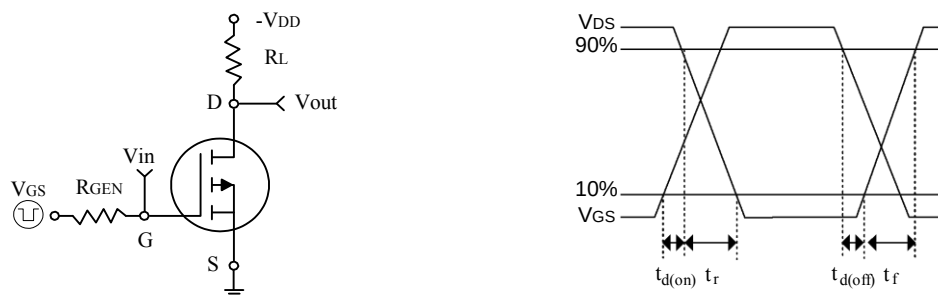
P-Channel High Density Trench MOSFET


Figure 9. Switching Test Circuit and Switching Waveforms

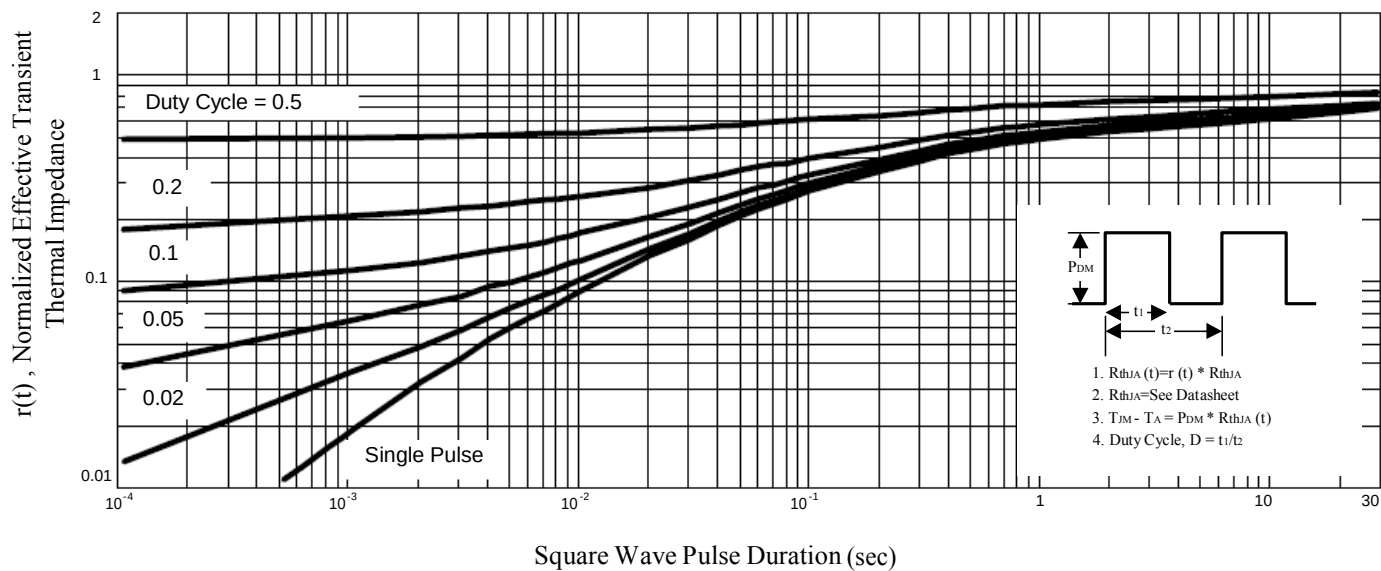
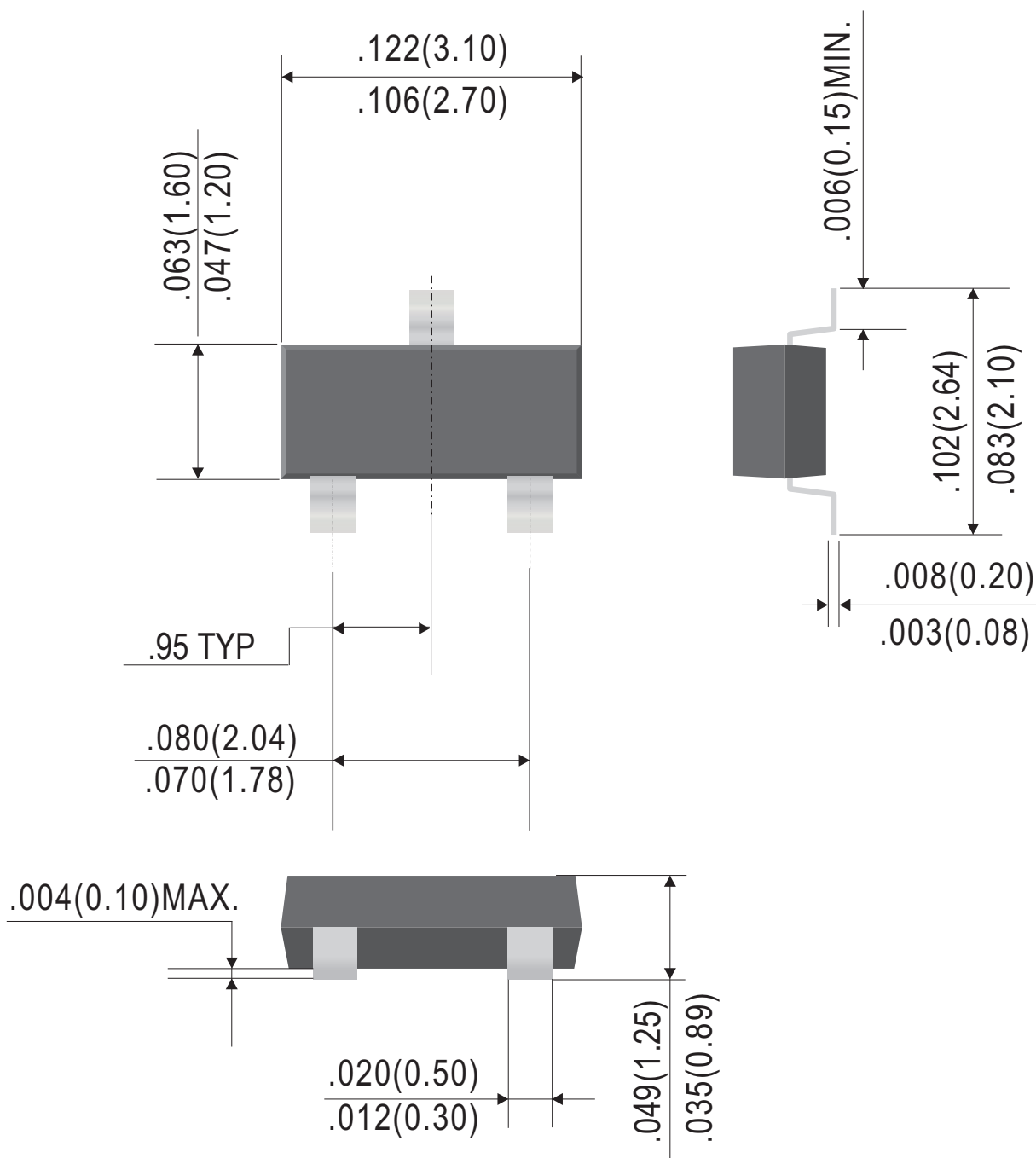


Figure 10. Normalized Thermal Transient Impedance Curve

Outline Drawing

SOT-23



Dimensions in inches and (millimeters)

Rev.E

Ordering Information:

Device PN	Marking	Packing
SE3407GD -T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	5B $\geq$	Tape&Reel: 3 Kpcs/Reel

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

(2) Halogen free product for packing code suffix "H"

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

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