

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

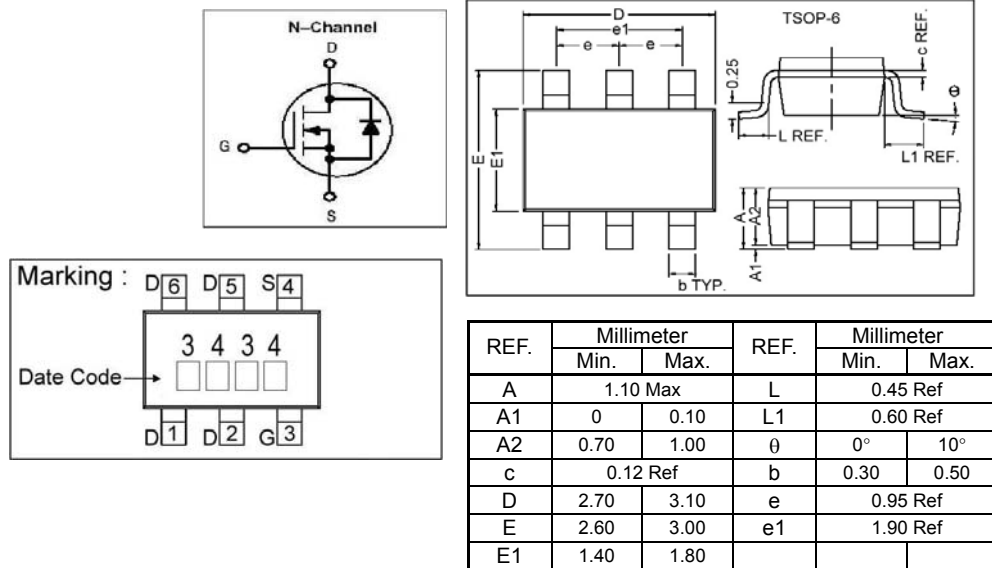
DESCRIPTION

The STT3434 uses advanced trench technology to provide excellent on-resistance and low gate charge. The TSOP-6 package is universally used for all commercial-industrial surface mount applications.

APPLICATIONS

- Low on-resistance
- Capable of 2.5V gate drive

PACKAGE DIMENSIONS



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current ³	$V_{GS}@ 4.5V, I_D @TA=25^{\circ}C$ $V_{GS}@ 4.5V, I_D @TA=70^{\circ}C$	6.1 4.9	A
Pulsed Drain Current ¹	I_{DM}	30	A
Power Dissipation	$P_D @TA=25^{\circ}C$	1.14	W
Linear Derating Factor		0.01	W/°C
Thermal Resistance Junction-ambient ³ Max.	RθJA	110	°C/W
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	$V_{GS} = 0, I_D = 250\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	0.6	-	-	V	$V_{DS} = V_{GS}, I_D = 1\text{mA}$
Forward Transconductance	g_{fs}	-	20	-	S	$V_{DS} = 10\text{V}, I_D = 6.1\text{A}$
Gate Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS} = \pm 12\text{V}$
Zero Gate Voltage Drain Current ($T_j=25^\circ\text{C}$)	I_{DSS}	-	-	1	uA	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current ($T_j=75^\circ\text{C}$)		-	-	5		$V_{DS} = 24\text{V}, V_{GS} = 0\text{V}$
Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	-	34	mΩ	$V_{GS} = 4.5\text{V}, I_D = 6.1\text{A}$
		-	-	50		$V_{GS} = 2.5\text{V}, I_D = 2.0\text{A}$
Total Gate Charge ²	Q_g	-	8	12	nC	$I_D = 6.1\text{A}$ $V_{DS} = 15\text{V}$ $V_{GS} = 4.5\text{V}$
Gate-Source Charge	Q_{gs}	-	1.9	-		
Gate-Drain Charge	Q_{gd}	-	2.6	-		
Turn-on Delay Time ²	$T_{d(on)}$	-	21	-	ns	$V_{DS} = 15\text{V}$ $I_D = 1\text{A}$ $V_{GS} = 4.5\text{V}$ $R_G = 6\Omega$ $R_L = 15\Omega$
Rise Time	T_r	-	45	-		
Turn-off Delay Time	$T_{d(off)}$	-	40	-		
Fall Time	T_f	-	30	-		

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ²	V_{SD}	-	-	1.2	V	$I_S = 1.7\text{A}, V_{GS} = 0\text{V}$
Reverse Recovery Time ²	T_{rr}	-	40	-	ns	$I_S = 1.7\text{A}, di/dt = 100\text{A}/\mu\text{s}$

- Notes:
1. Pulse width limited by Max. junction temperature.
 2. Pulse width 300us, duty cycle $\leq 2\%$.
 3. Surface mounted on 1 in² copper pad of FR4 board, $t \leq 5\text{ sec}$; 180°C/W when mounted on Min. copper pad.

CHARACTERISTIC CURVES

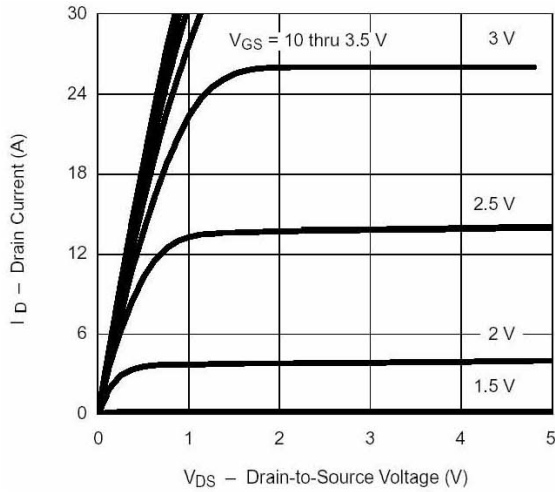


Fig 1. Typical Output Characteristics

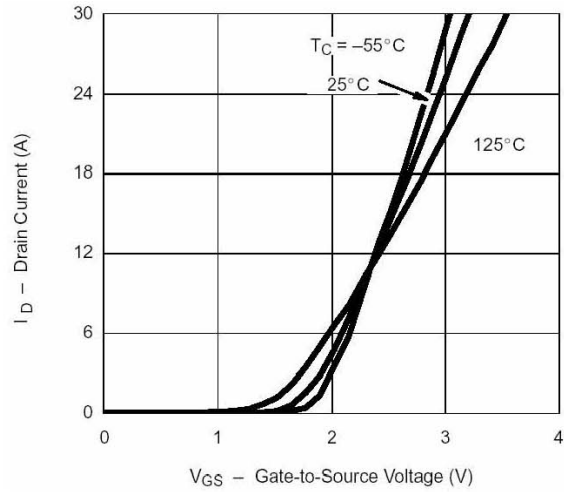


Fig 2. Transfer Characteristics

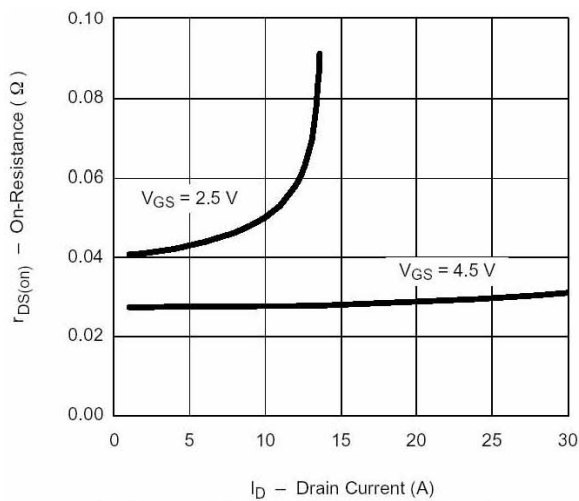


Fig 3. On-Resistance v.s. Drain Current

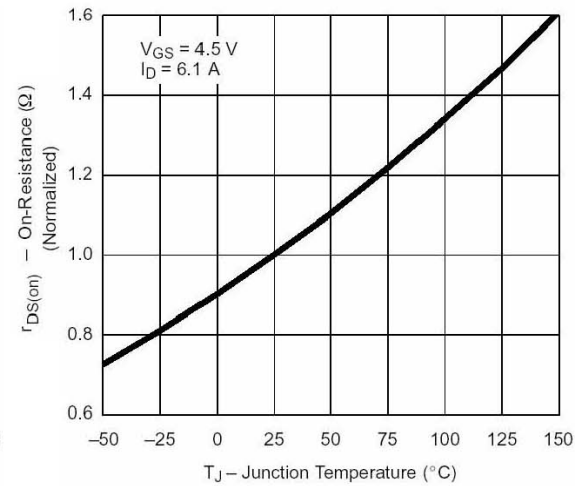


Fig 4. On-Resistance v.s. Junction Temperature

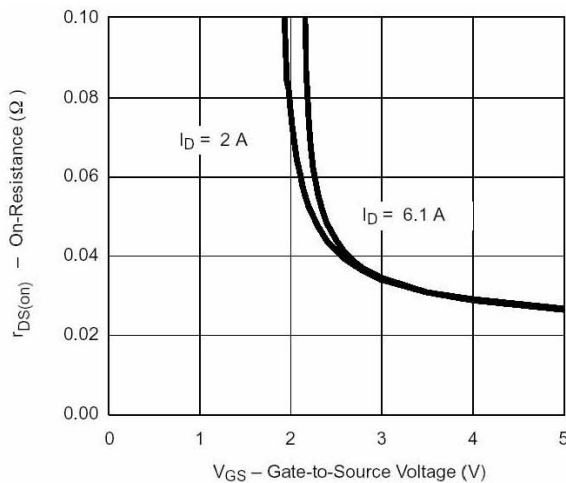


Fig 5. On-Resistance v.s. Gate-Source Voltage

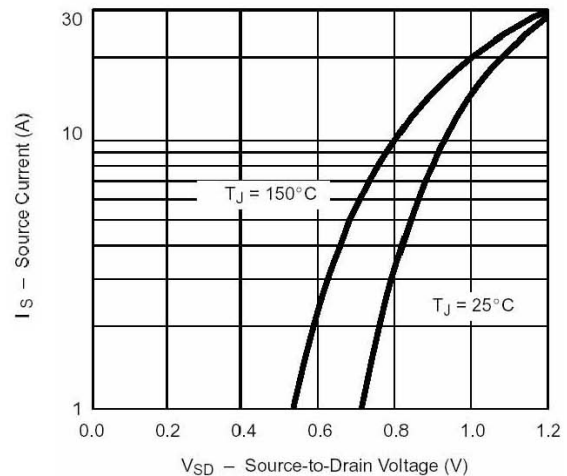


Fig 6. Body Diode Characteristics

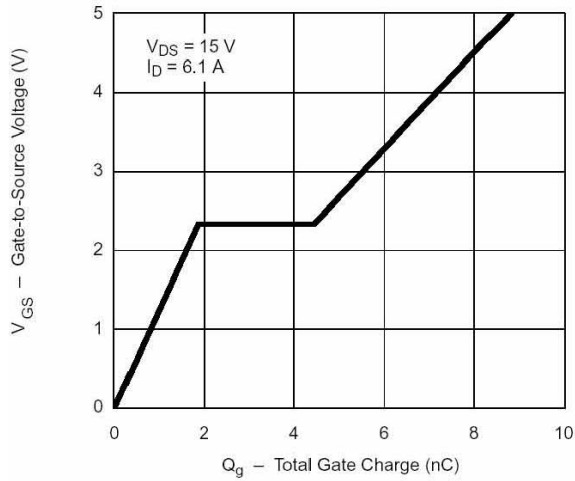


Fig 7. Gate Charge Characteristics

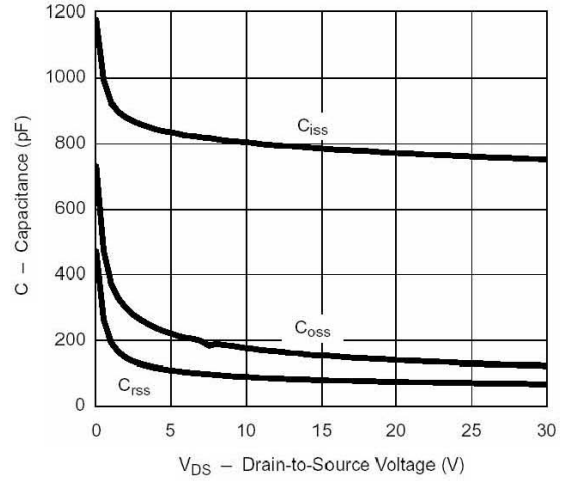


Fig 8. Typical Capacitance Characteristics

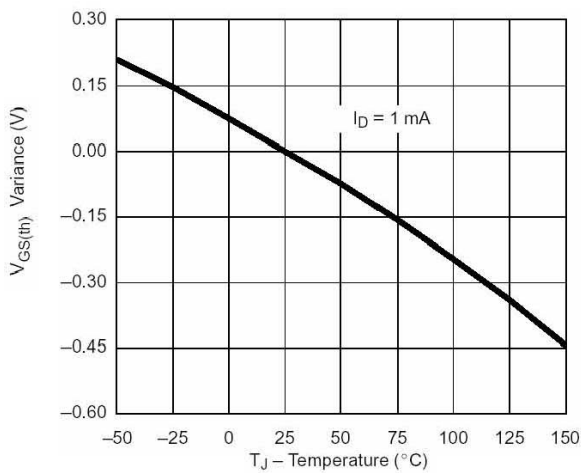


Fig 9. Threshold Voltage

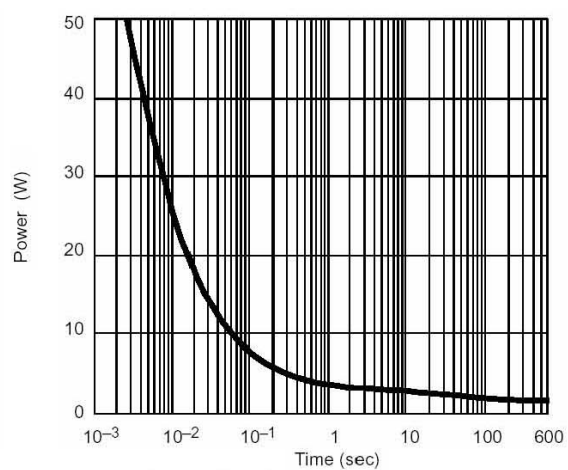


Fig 10. Single Pulse Power

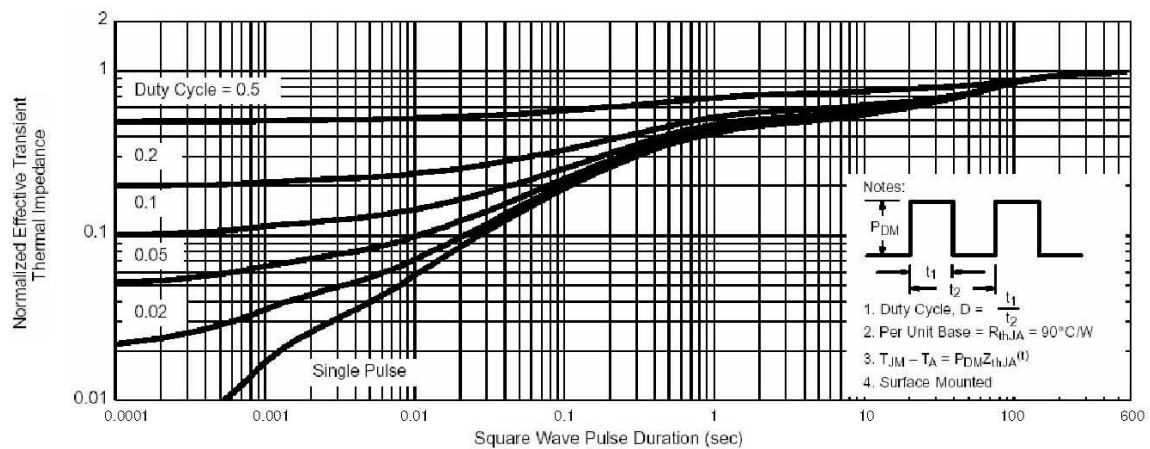


Fig 11. Normalized Maximum Transient Thermal Impedance