

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

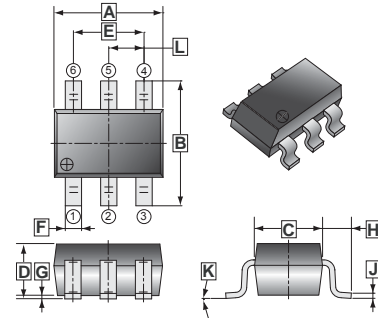
DESCRIPTION

STT4443 utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device. The TSOP-6 package is universally used for all commercial-industrial applications.

FEATURES

- Simple Drive Requirement
- Smaller Outline Package
- Surface mount package

TSOP-6



MARKING

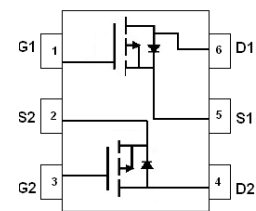


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.10	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.30	0.50			

PACKAGE INFORMATION

Package	MPQ	Leader Size
TSOP-6	3K	7 inch

TOP VIEW



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ³	I_D	$T_A=25^\circ\text{C}$	-2.3
		$T_A=70^\circ\text{C}$	-1.8
Pulsed Drain Current ¹	I_{DM}	-10	A
Power Dissipation	P_D	1.14	W
Linear Derating Factor		0.01	W / $^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55~150	$^\circ\text{C}$
Thermal Resistance Rating			
Maximum Junction to Ambient ³	$R_{\theta JA}$	110	$^\circ\text{C} / \text{W}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	$V_{GS}=0, I_D = -250\mu\text{A}$
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-	-2.5	V	$V_{DS}=V_{GS}, I_D = -250\mu\text{A}$
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20\text{V}$
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	$V_{DS} = -30\text{V}, V_{GS}=0$
		-	-	-25		$V_{DS} = -24\text{V}, V_{GS}=0$
Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	-	120	m Ω	$V_{GS} = -10\text{V}, I_D = -2\text{A}$
		-	-	170		$V_{GS} = -4.5\text{V}, I_D = -1\text{A}$
Forward Transconductance	g_{fs}	-	4	-	S	$V_{DS} = -5\text{V}, I_D = -2\text{A}$
Dynamic						
Total Gate Charge ²	Q_g	-	3	-	nC	$V_{DS} = -25\text{V},$ $V_{GS} = -4.5\text{V},$ $I_D = -2\text{A}$
Gate-Source Charge	Q_{gs}	-	0.78	-		
Gate-Drain Charge	Q_{gd}	-	1.6	-		
Turn-on Delay Time ²	$T_{d(on)}$	-	7	-	nS	$V_{DS} = -15\text{V},$ $V_{GS} = -5\text{V},$ $R_G = 3.3\Omega,$ $R_D = 15\Omega,$ $I_D = -1\text{A}$
Rise Time	T_r	-	6	-		
Turn-off Delay Time	$T_{d(off)}$	-	15	-		
Fall Time	T_f	-	7.5	-		
Input Capacitance	C_{iss}	-	260	-	pF	$V_{GS}=0,$ $V_{DS} = -25\text{V},$ $f=1.0\text{MHz}$
Output Capacitance	C_{oss}	-	55	-		
Reverse Transfer Capacitance	C_{rss}	-	44	-		
Reverse Transfer Capacitance	R_g	-	4.3	5	Ω	$f=1.0\text{MHz}$
Source-Drain Diode						
Diode Forward Voltage ²	V_{SD}	-	-	-1.2	V	$I_S = -0.9\text{A}, V_{GS}=0$
Reverse Recovery Time ²	T_{RR}	-	15	-	ns	$I_S = -2\text{A}, V_{GS}=0$
Reverse Recovery Charge	Q_{RR}	-	7	-	nC	$dI/dt=100\text{A}/\mu\text{s}$

Notes:

1. Pulse width limited by Max. junction temperature.
2. Pulse test
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

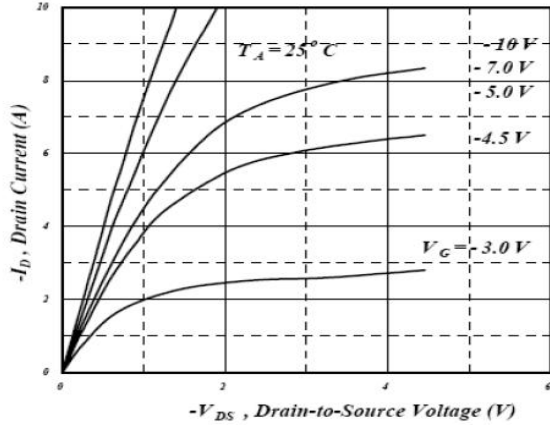


Fig 1. Typical Output Characteristics

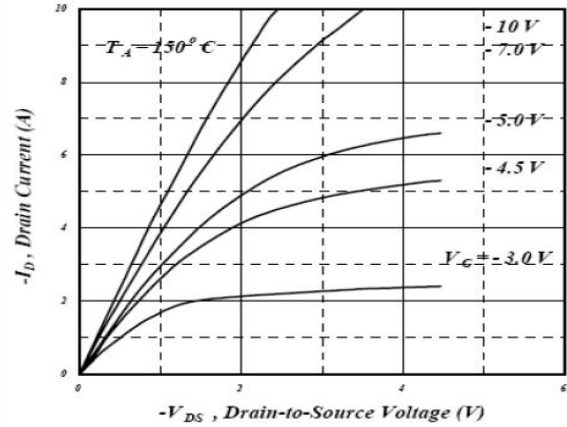


Fig 2. Typical Output Characteristics

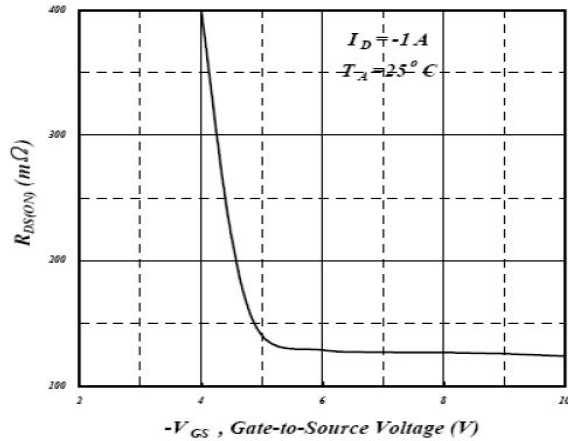


Fig 3. On-Resistance v.s. Gate Voltage

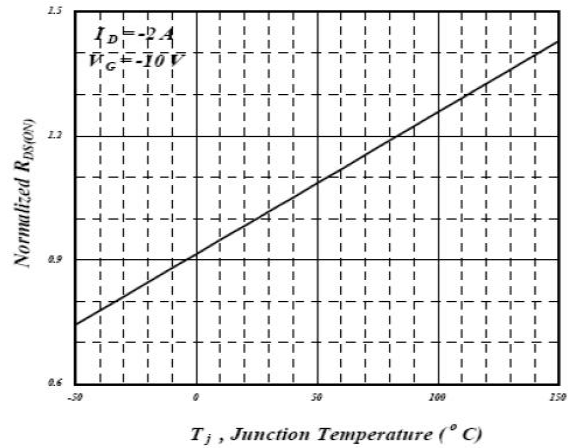


Fig 4. Normalized On-Resistance v.s. Junction Temperature

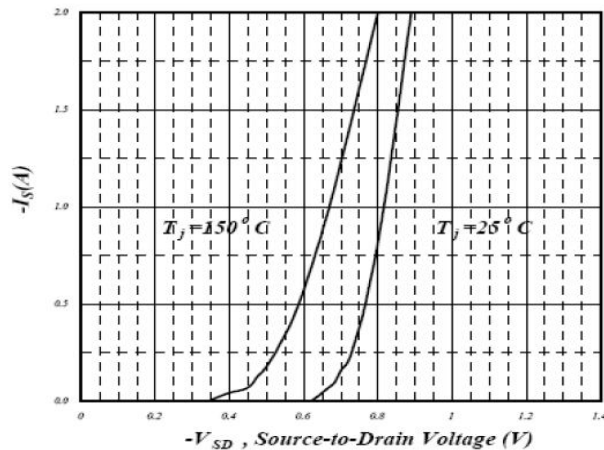


Fig 5. Forward Characteristic of Reverse Diode

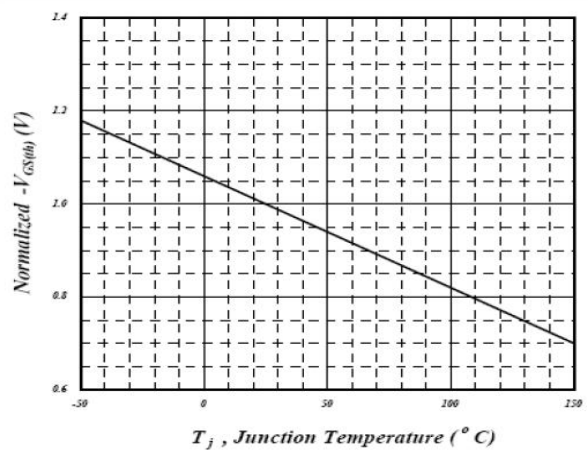


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

CHARACTERISTIC CURVES

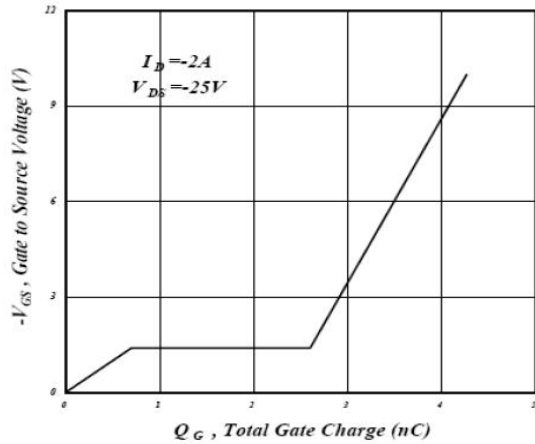


Fig 7. Gate Charge Characteristics

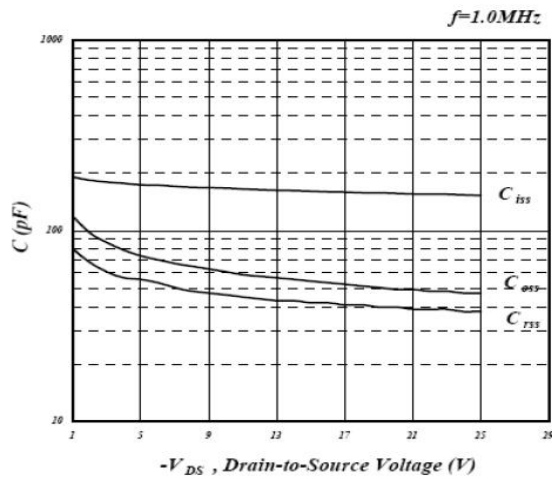


Fig 8. Typical Capacitance Characteristics

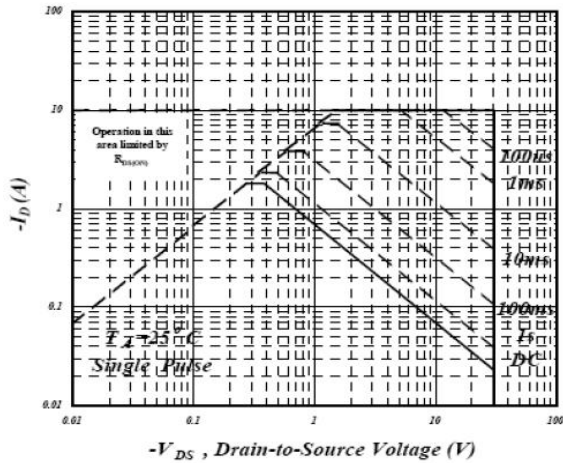


Fig 9. Maximum Safe Operating Area

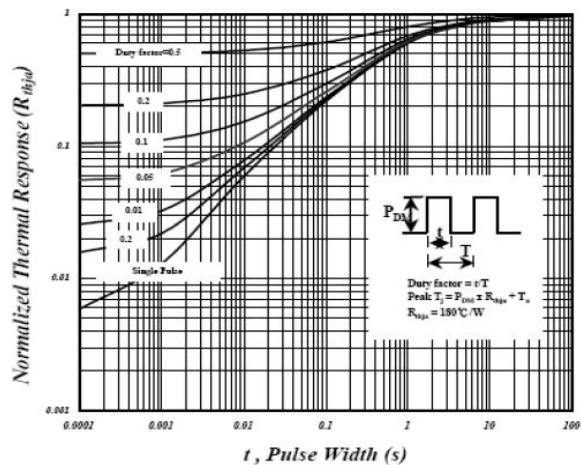


Fig 10. Effective Transient Thermal Impedance

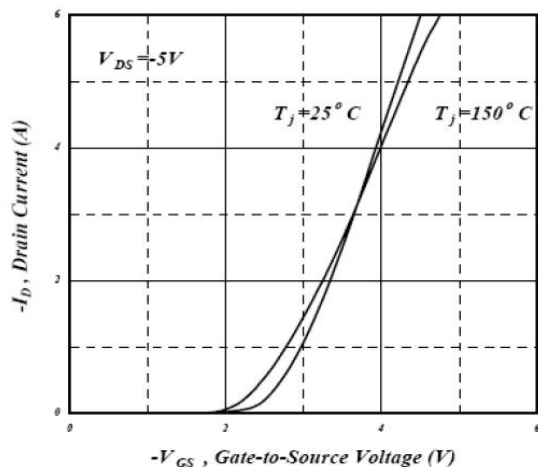


Fig 11. Transfer Characteristics

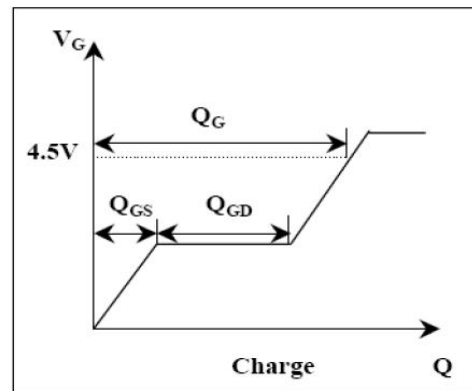


Fig 12. Gate Charge Waveform