

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

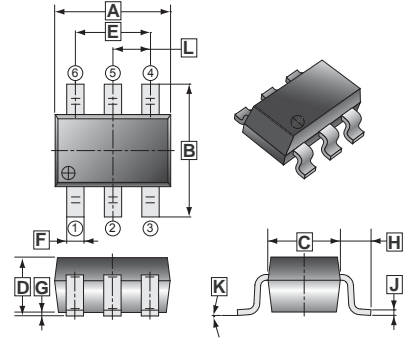
**DESCRIPTION**

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.

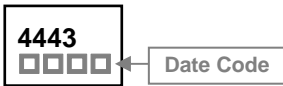
**FEATURES**

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

**TSOP-6**



**MARKING**

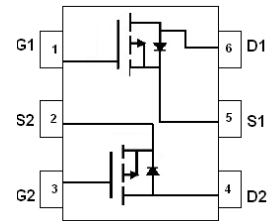


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.10	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.30	0.50			

**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	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>3</sup>	$I_D$	$T_A=25^\circ\text{C}$	-2.3
		$T_A=70^\circ\text{C}$	-1.8
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	-10	A
Power Dissipation	$P_D$	1.14	W
Linear Derating Factor		0.01	W / °C
Operating Junction and Storage Temperature Range	$T_j, T_{stg}$	-55~150	°C
<b>Thermal Resistance Rating</b>			
Maximum Junction to Ambient <sup>3</sup>	$R_{\theta JA}$	110	°C / W

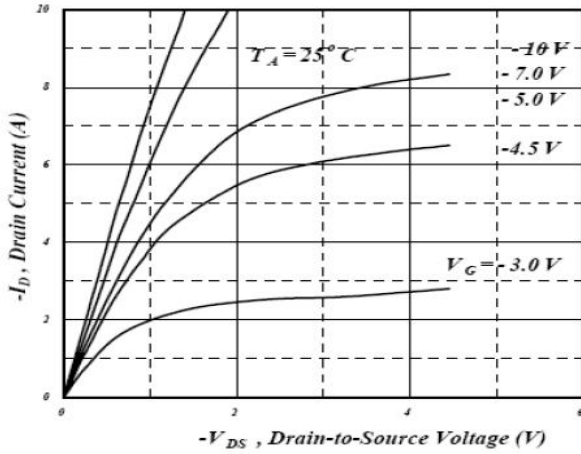
**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
<b>Static</b>						
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	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS}=\pm 20\text{V}$
Drain-Source Leakage Current	$I_{DSS}$	-	-	-1	$\mu\text{A}$	$V_{DS} = -30\text{V}, V_{GS}=0$
		-	-	-25		$V_{DS} = -24\text{V}, V_{GS}=0$
Drain-Source On-Resistance <sup>2</sup>	$R_{DS(ON)}$	-	-	120	m $\Omega$	$V_{GS} = -10\text{V}, I_D = -2\text{A}$
		-	-	170		$V_{GS} = -4.5\text{V}, I_D = -1\text{A}$
Forward Transconductance	$g_{fs}$	-	4	-	S	$V_{DS} = -5\text{V}, I_D = -2\text{A}$
<b>Dynamic</b>						
Total Gate Charge <sup>2</sup>	$Q_g$	-	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 <sup>2</sup>	$T_{d(on)}$	-	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	$\Omega$	$f=1.0\text{MHz}$
<b>Source-Drain Diode</b>						
Diode Forward Voltage <sup>2</sup>	$V_{SD}$	-	-	-1.2	V	$I_S = -0.9\text{A}, V_{GS}=0$
Reverse Recovery Time <sup>2</sup>	$T_{RR}$	-	15	-	ns	$I_S = -2\text{A}, V_{GS}=0$
Reverse Recovery Charge	$Q_{RR}$	-	7	-	nC	$dI/dt=100\text{A}/\mu\text{s}$

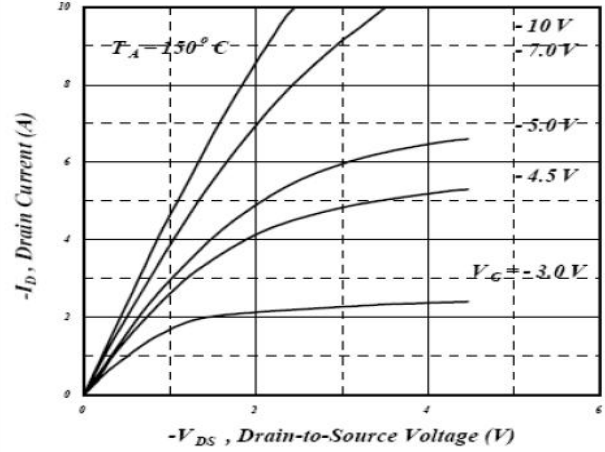
Notes:

1. Pulse width limited by Max. junction temperature.
2. Pulse test
3. Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board,  $t \leq 5\text{sec}$ ; 180°C/W when mounted on Min. copper pad.

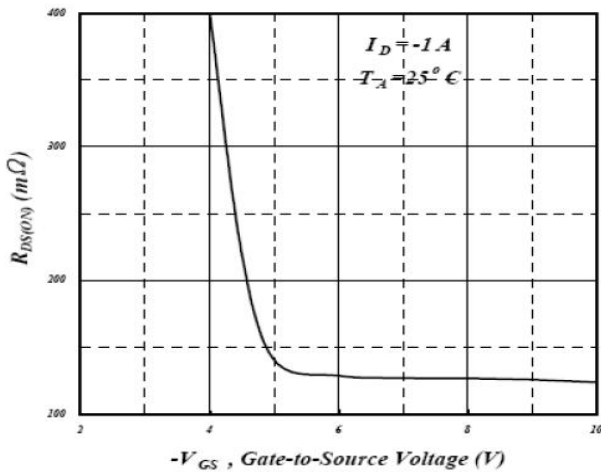
**CHARACTERISTIC CURVES**



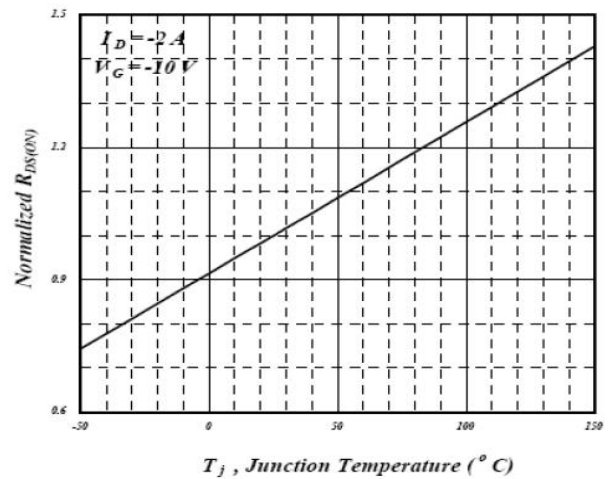
**Fig 1. Typical Output Characteristics**



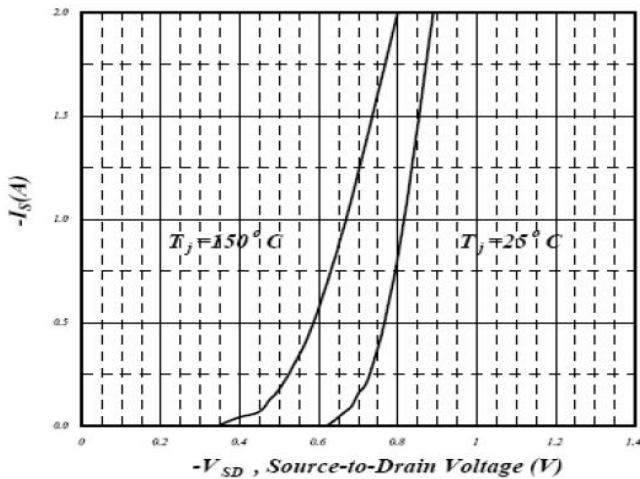
**Fig 2. Typical Output Characteristics**



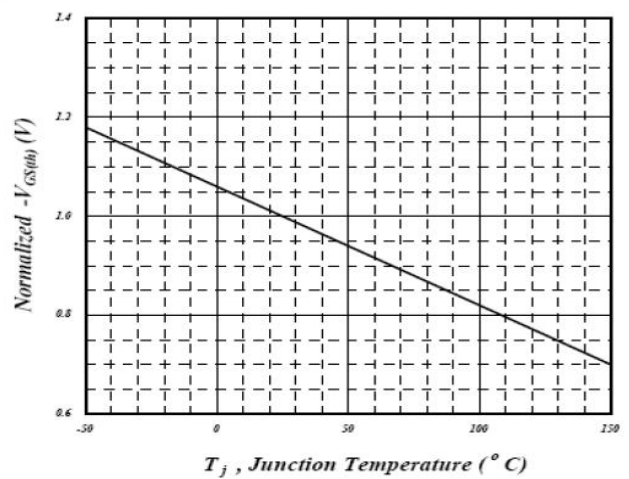
**Fig 3. On-Resistance v.s. Gate Voltage**



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

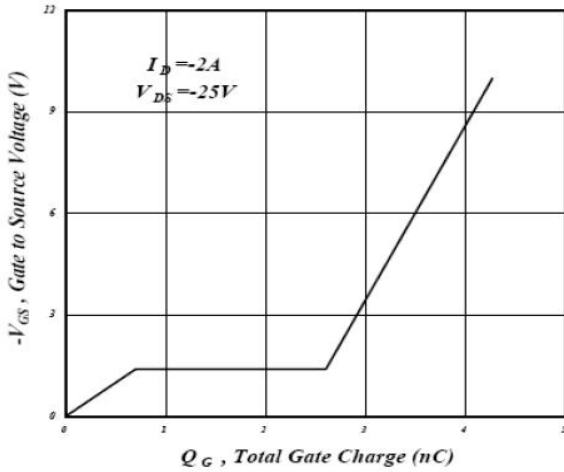


**Fig 5. Forward Characteristic of Reverse Diode**

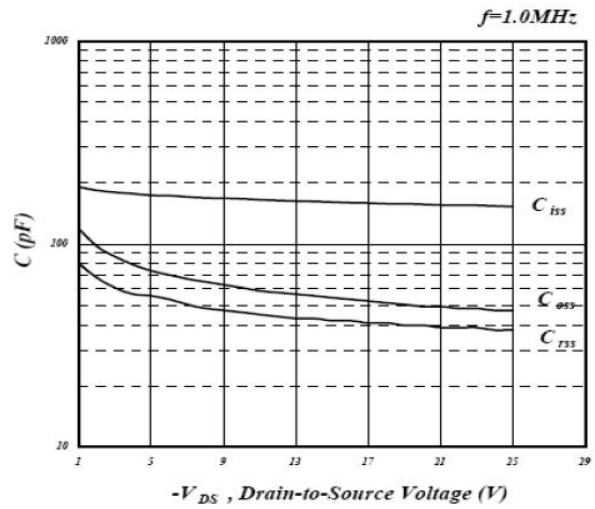


**Fig 6. Gate Threshold Voltage v.s. Junction Temperature**

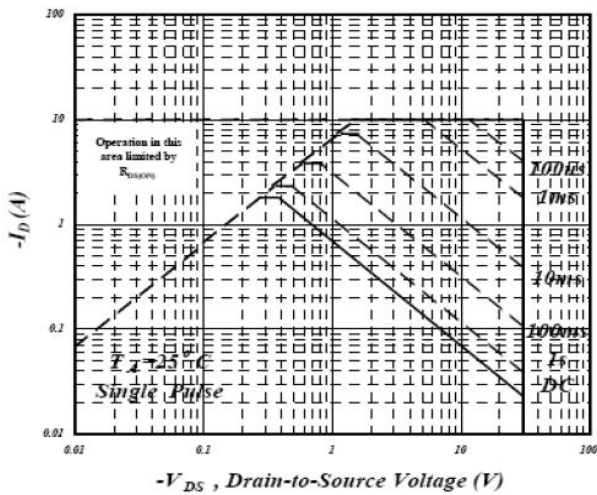
**CHARACTERISTIC CURVES**



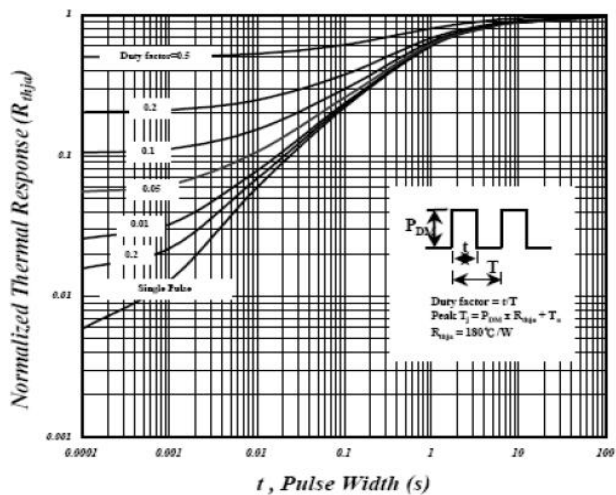
**Fig 7. Gate Charge Characteristics**



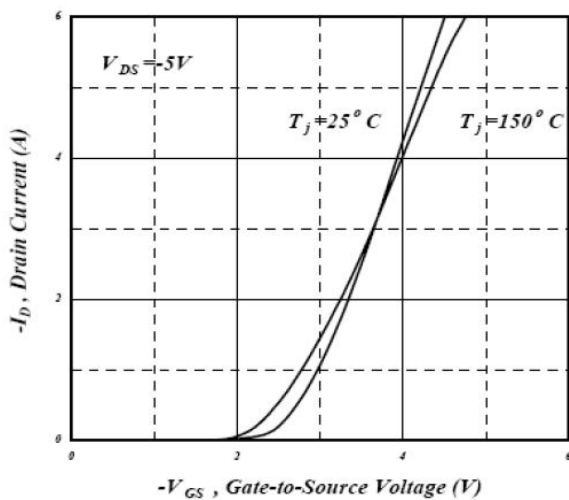
**Fig 8. Typical Capacitance Characteristics**



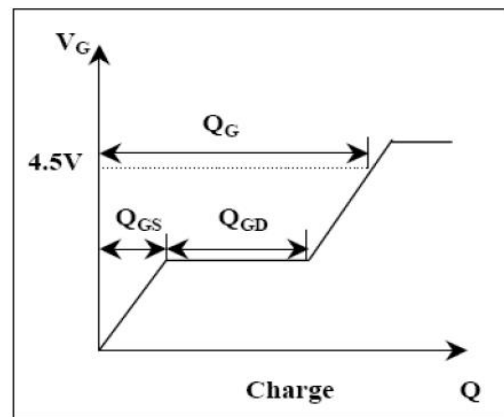
**Fig 9. Maximum Safe Operating Area**



**Fig 10. Effective Transient Thermal Impedance**



**Fig 11. Transfer Characteristics**



**Fig 12. Gate Charge Waveform**