SST3585

3.5A, 20V, $R_{DS(ON)}$ 75mΩ
-2.5A, -20V, $R_{DS(ON)}$ 160mΩ
N And P-Channel Enhancement Mode Power MOSFET

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

DESCRIPTION

The SST3585 provide the designer with best combination of fast switching, low on-resistance and cost effectiveness.
The SOT-26 package is universally used for all commercial-industrial surface mount applications.

FEATURES

- Low Gate Charge
- Low On-resistance

MARKING CODE

3 5 8 5
□□□□ ← □ = Date Code
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PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-26	3K	7 inch

SOT-26
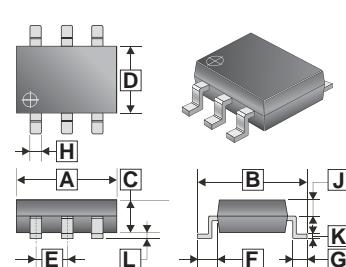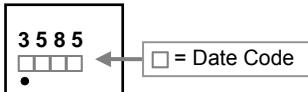
REF.	Millimeter Min.	Millimeter Max.	REF.	Millimeter Min.	Millimeter Max.
A	2.70	3.10	G	0.37 REF.	
B	2.60	3.00	H	0.30	0.55
C	1.20 REF.		J	-	-
D	1.40	1.80	K	0.12 REF.	
E	0.95 REF.		L	-	0.10
F	0.60 REF.				

TOP VIEW
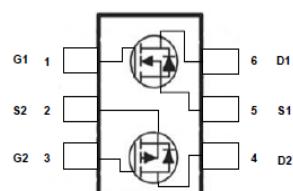
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

Parameter		Symbol	Ratings N-Channel	Ratings P-Channel	Unit
Drain-Source Voltage		V_{DS}	20	-20	V
Gate-Source Voltage		V_{GS}	±12	±12	V
Continuous Drain Current [3]	T_A = 25°C	I_D	3.5	-2.5	A
	T_A = 70°C		2.8	-1.97	
Pulsed Drain Current [1]		I_{DM}	10	-10	A
Power Dissipation		P_D	1.14		W
Maximum Junction to Ambient [3]		$R_{\theta JA}$	110		°C / W
Linear Derating Factor			0.01		W / °C
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150		°C

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static							
Drain-Source Breakdown Voltage	N-Ch	BV_{DSS}	20	-	-	V	V_{GS}=0, I_D=250µA
	P-Ch		-20	-	-		V_{GS}=0, I_D= -250µA
Breakdown Voltage Temp. Coefficient	N-Ch	$\triangle BV_{DSS}/\triangle T_J$	-	0.02	-	V/°C	Reference to 25°C, ID=1mA
	P-Ch		-	-0.01	-		Reference to 25°C, ID= -1mA
Gate-Threshold Voltage	N-Ch	$V_{GS(th)}$	0.5	-	1.2	V	V_{DS}=V_{GS}, I_D=250µA
	P-Ch		-	-	-1.2		V_{DS}=V_{GS}, I_D= -250µA
Forward Transconductance	N-Ch	g_{fs}	-	7	-	S	V_{DS}=5V, I_D=3A
	P-Ch		-	4	-		V_{DS}= -5V, I_D= -2A
Gate-Source Leakage Current	N-Ch	I_{GSS}	-	-	±100	nA	V_{GS}= ±12V
	P-Ch		-	-	±100		V_{GS}= ±12V
Drain-Source Leakage Current	N-Ch	I_{DSS}	-	-	1	µA	V_{DS}=20 V, V_{GS}=0
	P-Ch		-	-	-1		V_{DS}= -20 V, V_{GS}=0
	N-Ch		-	-	10		V_{DS}=16V, V_{GS}=0
	P-Ch		-	-	-25		V_{DS}= -16V, V_{GS}=0
Drain-Source On-Resistance [1]	N-Ch	$R_{DS(ON)}$	-	-	75	mΩ	V_{GS}=4.5V, I_D=3.5A
	P-Ch		-	-	160		V_{GS}= -4.5V, I_D= -2.5A
	N-Ch		-	-	125		V_{GS}=2.5V, I_D=1.2A
	P-Ch		-	-	300		V_{GS}= -2.5V, I_D= -2A
Total Gate Charge[1]	N-Ch	Q_g	-	4	7	nC	N-Channel V_{DS}=16V, V_{GS}=4.5V, I_D=3A P-Channel V_{DS}= -16V, V_{GS}= -4.5V, I_D= -2A
	P-Ch		-	5	8		
Gate-Source Charge	N-Ch	Q_{gs}	-	0.7	-		
	P-Ch		-	1	-		
Gate-Drain Charge	N-Ch	Q_{gd}	-	2	-		
	P-Ch		-	2	-		
Turn-on Delay Time[1]	N-Ch	$T_{d(on)}$	-	6	-	nS	N-Channel V_{DS}=15V, R_G=3.3Ω, R_D=15Ω V_{GS}=5V, I_D=1A P-Channel V_{DS}= -10V, R_G=3.3Ω, R_D=10Ω V_{GS}= -10V, I_D= -1A
	P-Ch		-	6	-		
Rise Time	N-Ch	T_r	-	8	-		
	P-Ch		-	17	-		
Turn-off Delay Time	N-Ch	$T_{d(off)}$	-	10	-		
	P-Ch		-	16	-		
Fall Time	N-Ch	T_f	-	3	-		
	P-Ch		-	5	-		
Input Capacitance	N-Ch	C_{iss}	-	430	520	pF	N-Channel V_{GS}=0, V_{DS}=20V, f=1.0MHz P-Channel V_{GS}=0, V_{DS}= -20V, f=1.0MHz
	P-Ch		-	630	750		
Output Capacitance	N-Ch	C_{oss}	-	55	-		
	P-Ch		-	50	-		
Reverse Transfer Capacitance	N-Ch	C_{rss}	-	40	-		
	P-Ch		-	40	-		
Gate Resistance	N-Ch	R_g	-	1.4	1.7	Ω	f=1.0MHz
	P-Ch		-	7	10		

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Source-Drain Diode							
Forward On Voltage[1]	N-Ch	V_{SD}	-	-	1.2	V	I_S=1.2A, V_{GS}=0
	P-Ch		-	-	-1.2		I_S= -1.2A, V_{GS}=0
Reverse Recovery Time	N-Ch	T_{RR}	-	16	-	ns	I_S=3A, V_{GS}=0 ,dI/dt=100A/μs
	P-Ch		-	20	-		I_S= -2A, V_{GS}=0 ,dI/dt=100A/μs
Reverse Recovery Charge	N-Ch	Q_{rr}	-	8	-	nC	I_S=3A, V_{GS}=0 ,dI/dt=100A/μs
	P-Ch		-	15	-		I_S= -2A, V_{GS}=0 ,dI/dt=100A/μs

Notes:
1   Pulse width limited by Max. junction temperature.
2   Pulse width $\leq$ 300μs, duty cycle $\leq$ 2%.
3   Surface mounted on 1 in^2 copper pad of FR4 board; t$\leq$5 sec. 180°C/W when mounted on min. copper pad.

CHARACTERISTICS CURVE (N-Channel)
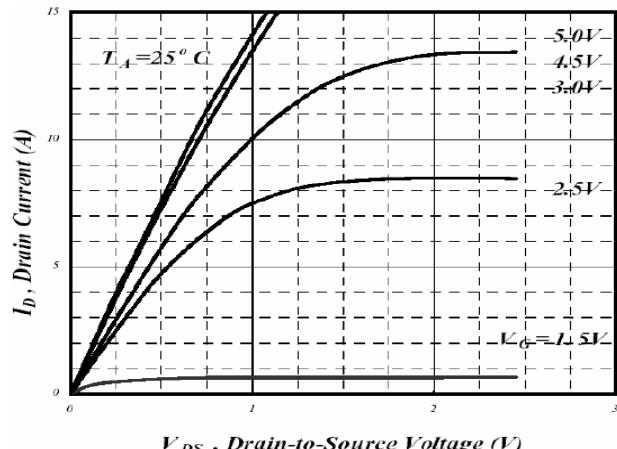
Fig 1. Typical Output Characteristics
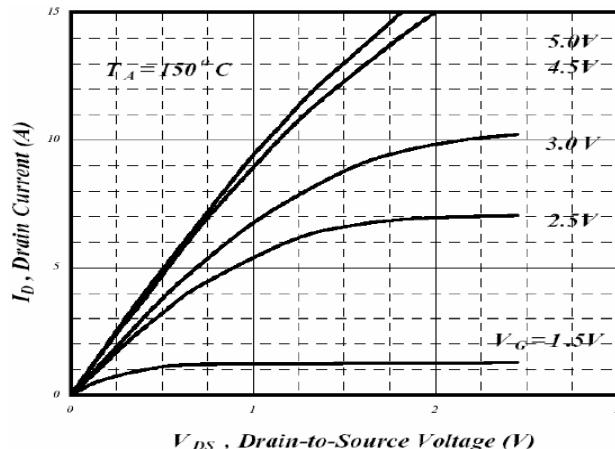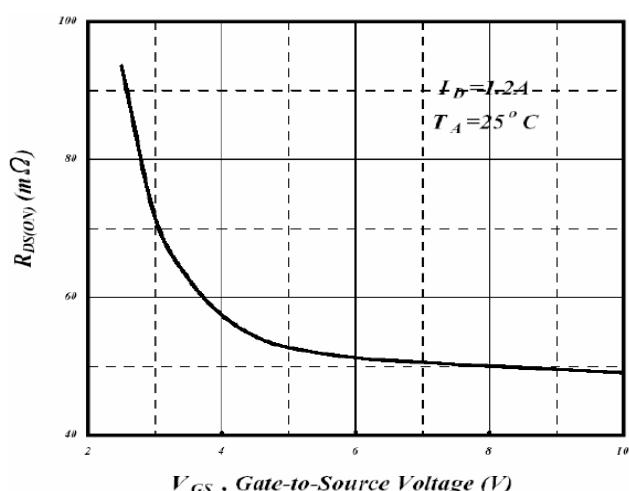
Fig 2. Typical Output Characteristics


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

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

Fig 5. Forward Characteristics of Reverse Diode

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

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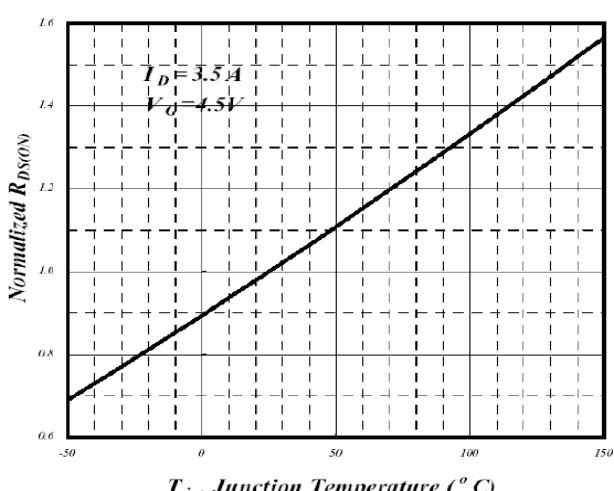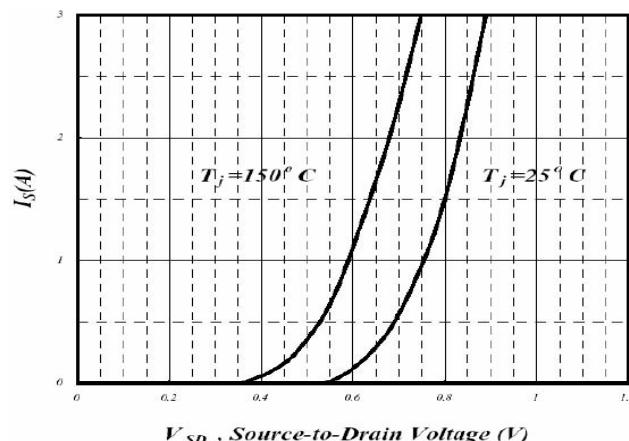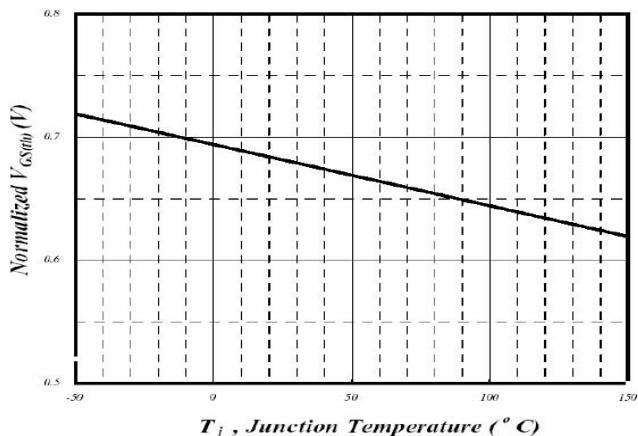
CHARACTERISTICS CURVE (N-Channel)
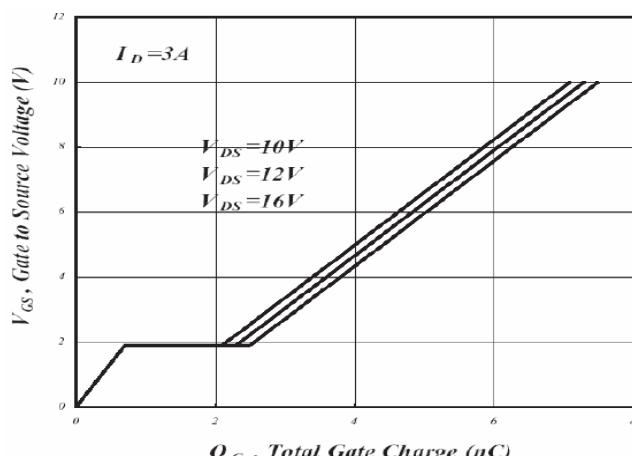
**Fig 7. Gate Charge Characteristics**
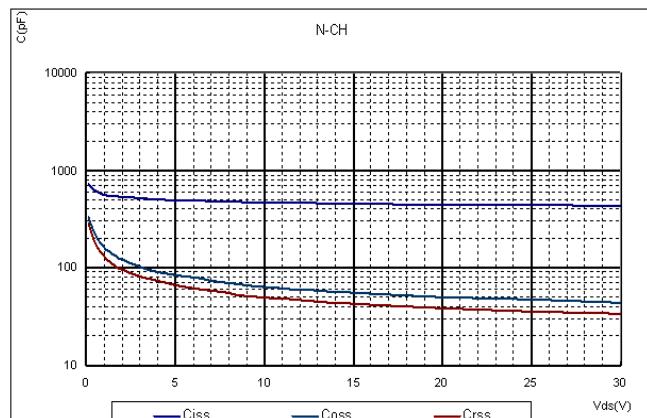
Fig 8. Typical Capacitance Characteristics
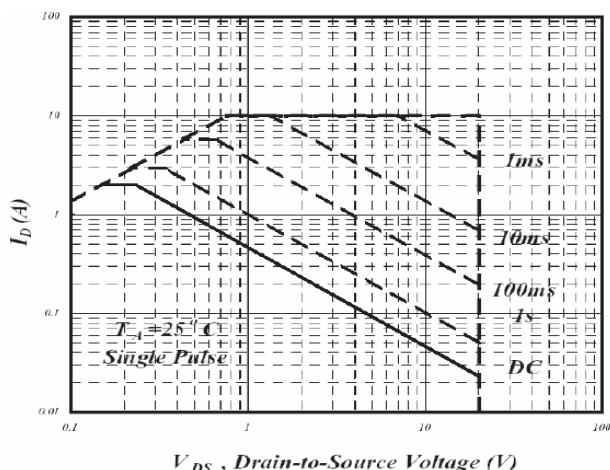
Fig 9. Maximum Safe Operating Area
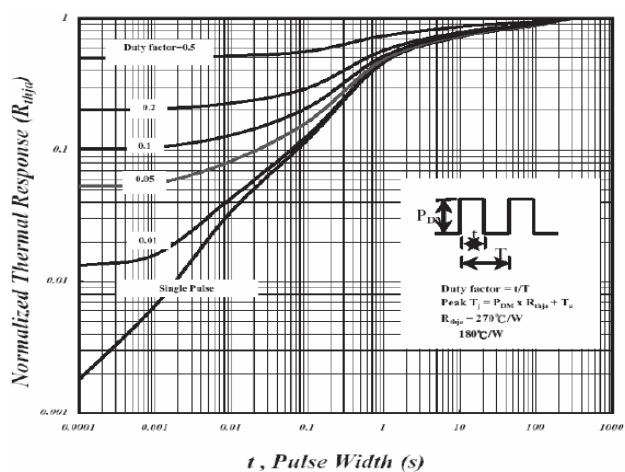
Fig 10. Effective Transient Thermal Impedance
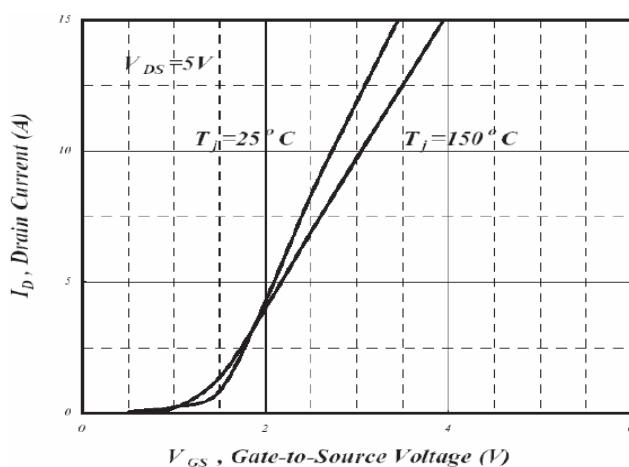
Fig 11. Transfer Characteristics
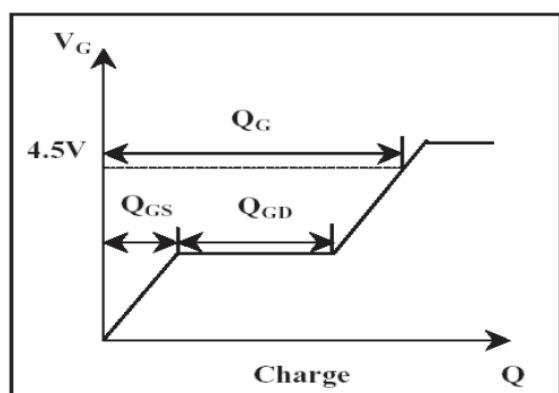
Fig 12. Gate Charge Waveform
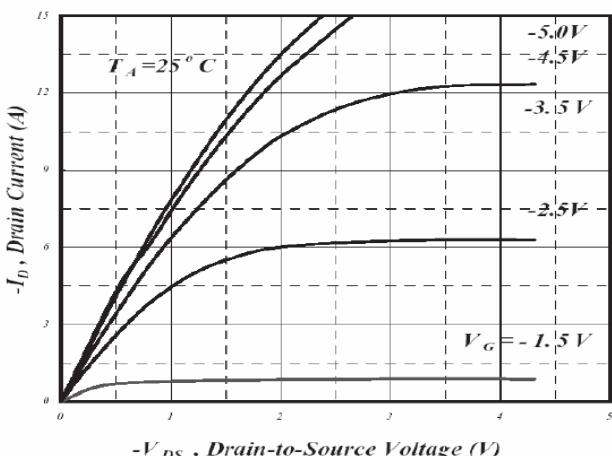
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CHARACTERISTICS CURVE (P-Channel)

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 Characteristics of
Reverse Diode

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

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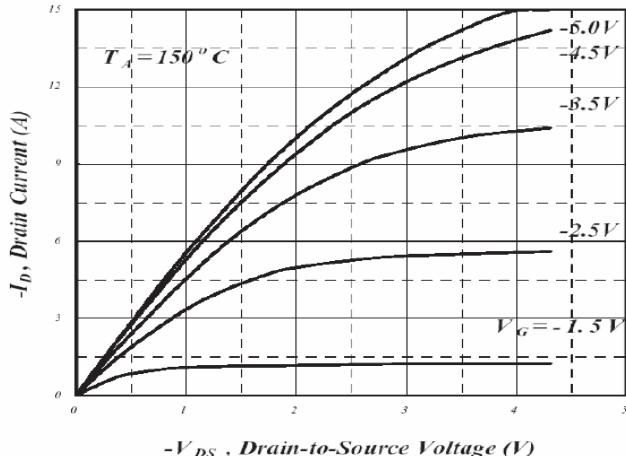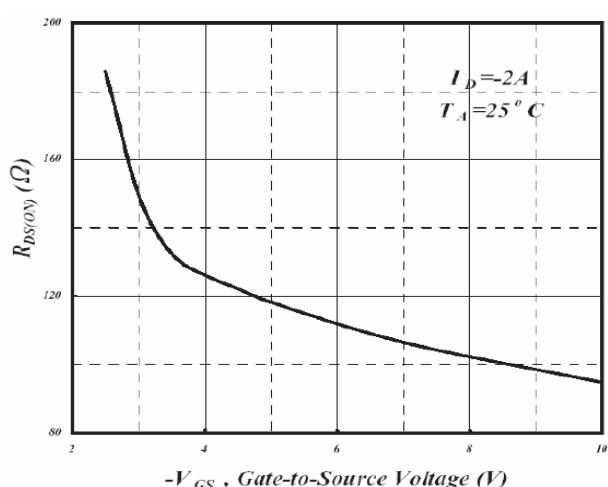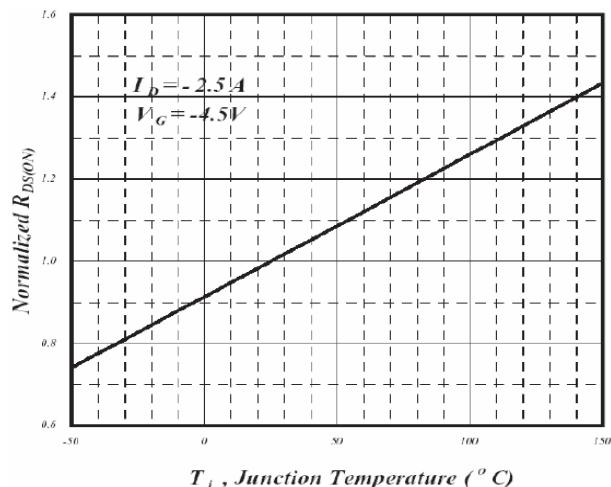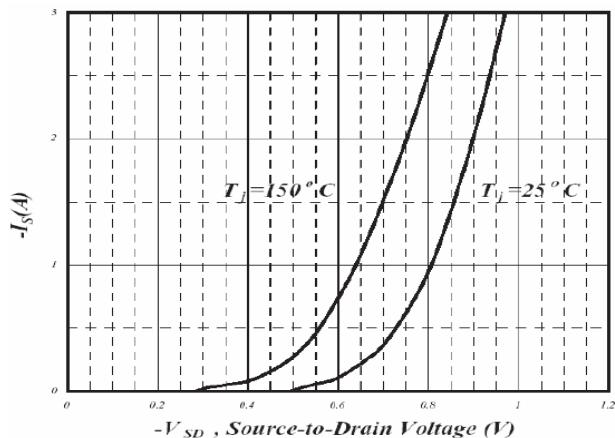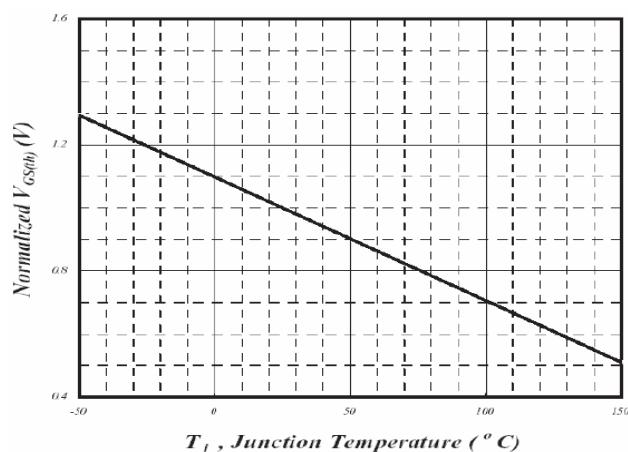
CHARACTERISTICS CURVE (P-Channel)
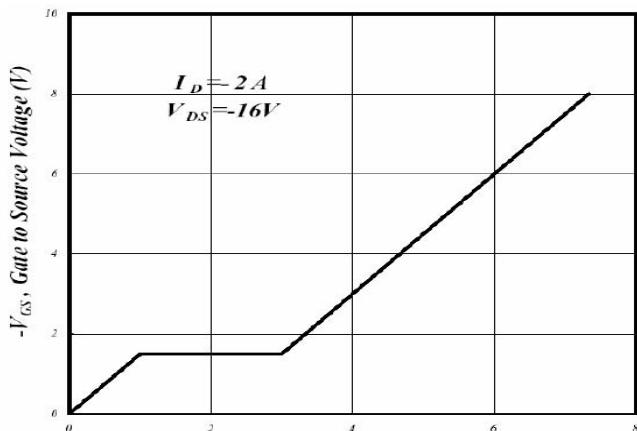
Fig 7. Gate Charge Characteristics

**Fig 8. Typical Capacitance Characteristics**
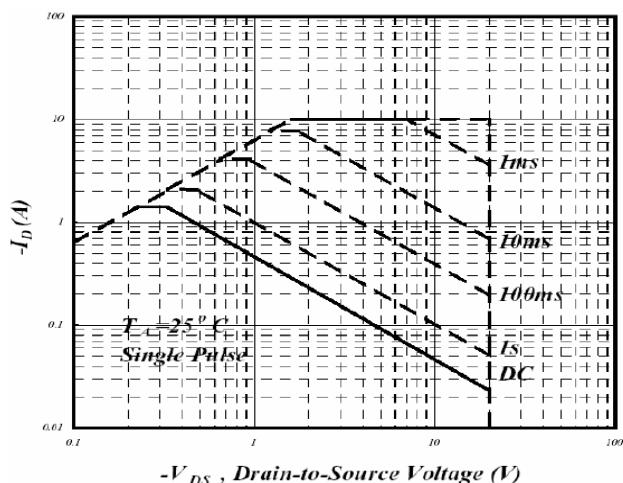
Fig 9. Maximum Safe Operating Area
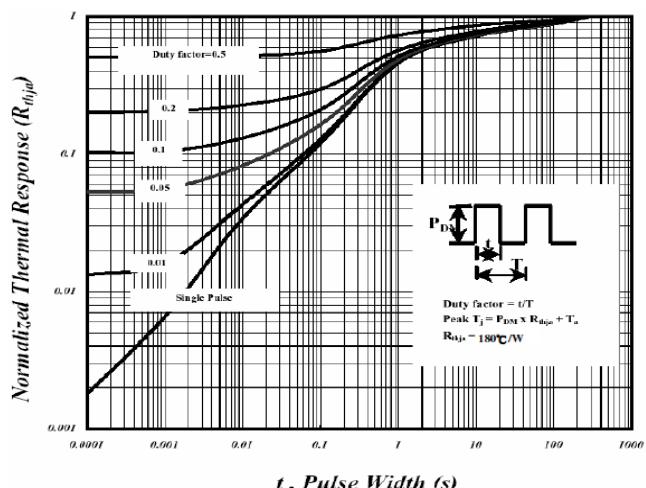
**Fig 10. Effective Transient Thermal Impedance**
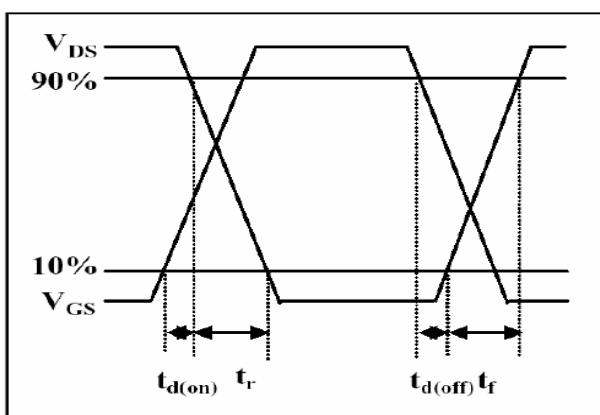
Fig 11. Switching Time Waveform

Fig 12. Gate Charge Waveform