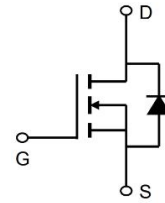
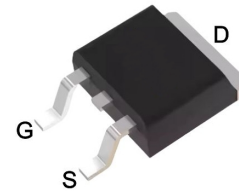


**100V N-CHANNEL ENHANCEMENT MODE MOSFET**
**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	120A
<b>V<sub>DSS</sub></b>	100V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 5.6mΩ( <b>Type:4.5 mΩ</b> )


**APPLICATIONS**

- Battery protection
- Load switch
- Uninterruptible power supply
- **SGT technology**


**TO-263C**
**MECHANICAL DATA**

- Case: Molded plastic
- Mounting Position: Any
- Molded Plastic: UL Flammability Classification Rating 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Solder bath temperature 275°C maximum, 10s per JESD 22-B106

**Maximum Ratings at T<sub>c</sub>=25°C unless otherwise specified**

Characteristics	Symbols	Value	Units
Drain-Source Voltage	<b>V<sub>DS</sub></b>	100	<b>V</b>
Gate - Source Voltage	<b>V<sub>GS</sub></b>	±20	<b>V</b>
Continue Drain Current	<b>I<sub>D</sub></b>	120	<b>A</b>
Pulsed Drain Current (Note1)	<b>I<sub>DM</sub></b>	520	<b>A</b>
Single Pulse Avalanche Energy (Note1)	<b>E<sub>AS</sub></b>	750	<b>mJ</b>
Total Power Dissipation	<b>P<sub>D</sub></b>	210	<b>W</b>
Storage Temperature Range	<b>T<sub>STG</sub></b>	-55 to +175	<b>°C</b>
Operating Junction Temperature Range	<b>T<sub>J</sub></b>	175	<b>°C</b>
Thermal Resistance, Junction to Ambient	<b>R<sub>θJA</sub></b>	55	<b>°C/W</b>
Thermal Resistance, Junction to Case	<b>R<sub>θJC</sub></b>	0.71	<b>°C/W</b>

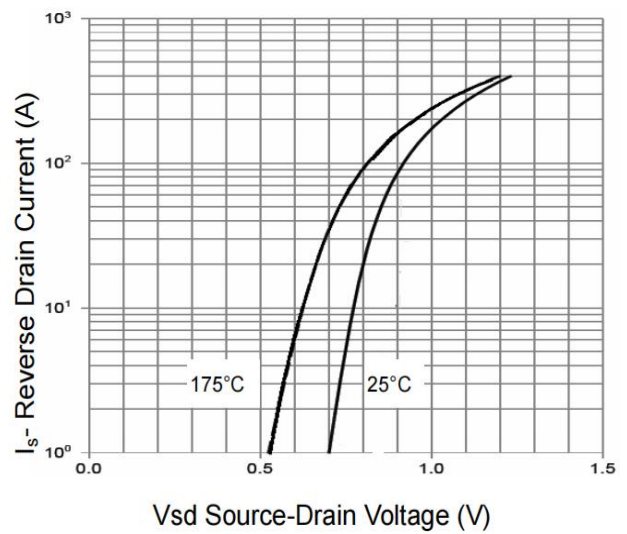
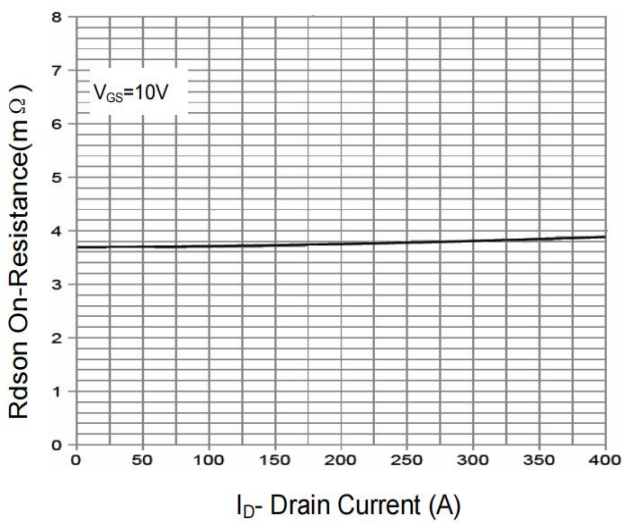
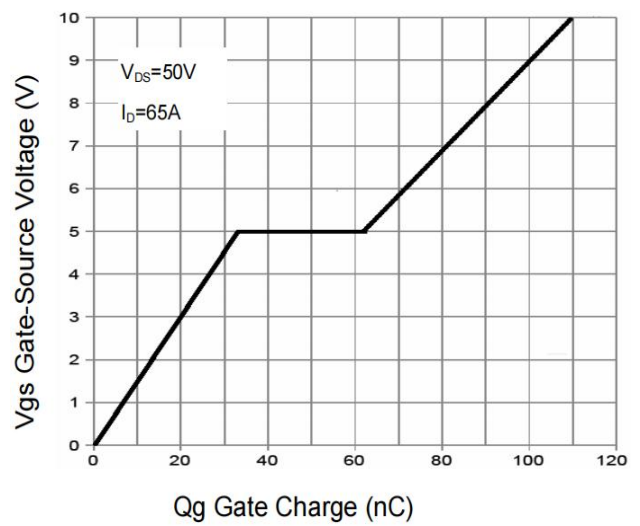
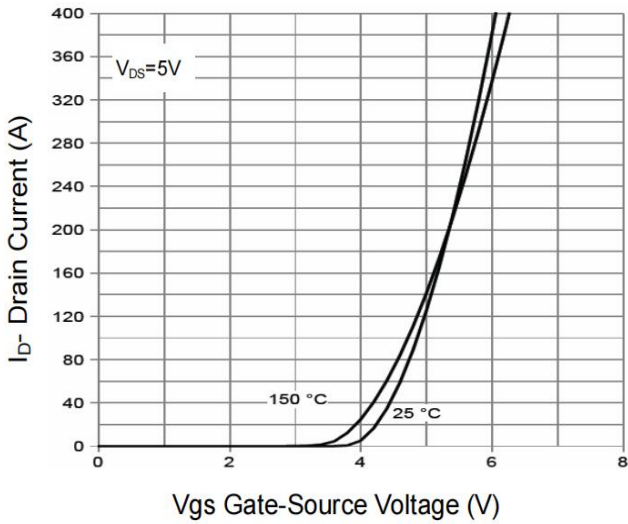
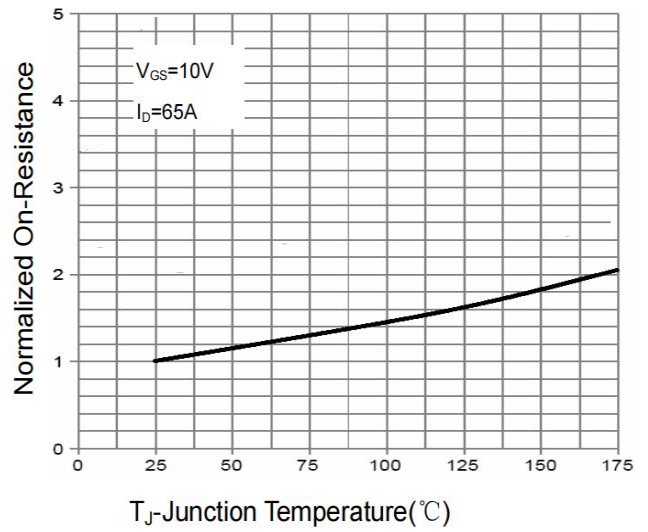
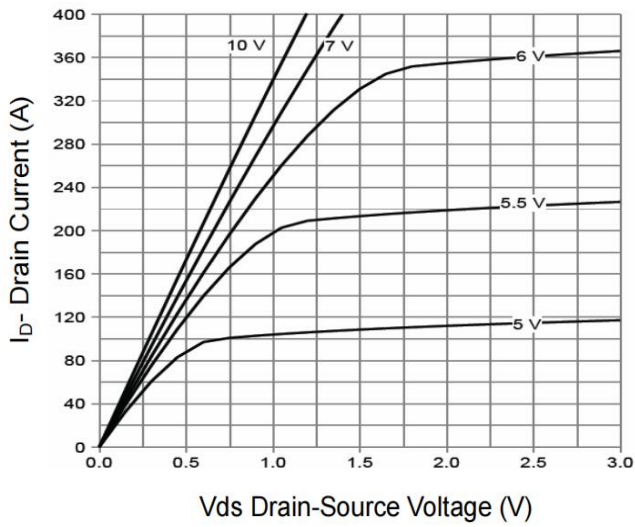
Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

**Maximum Ratings at Tc=25°C unless otherwise specified**

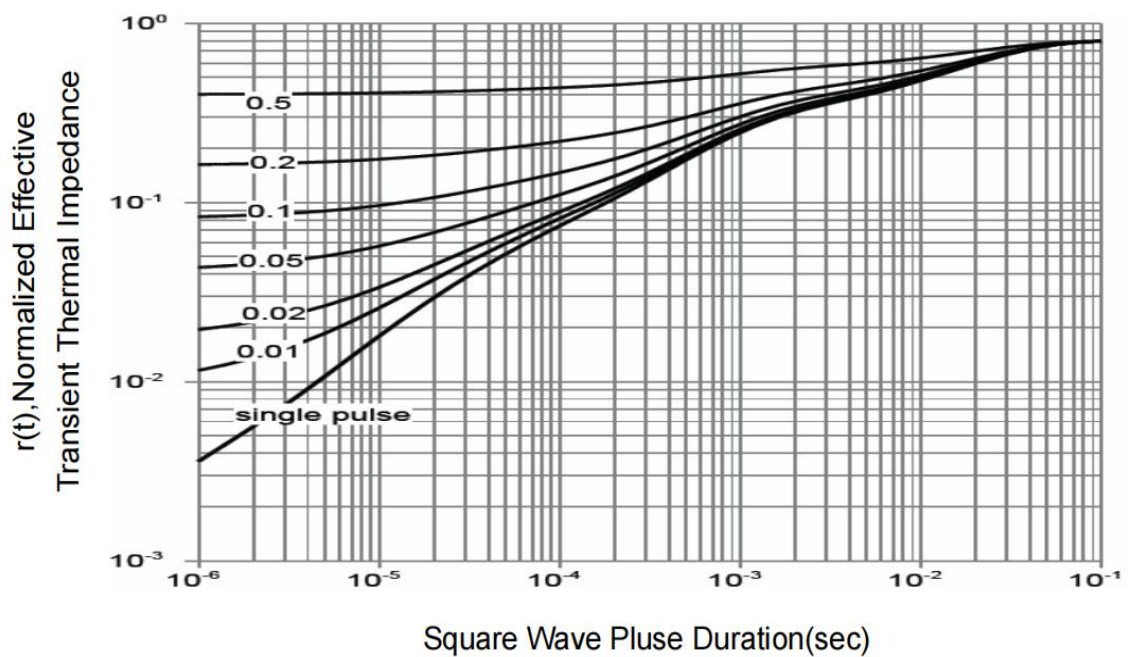
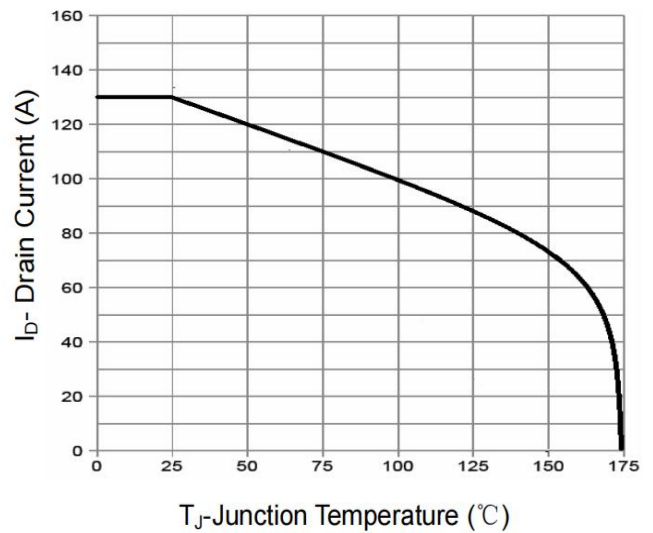
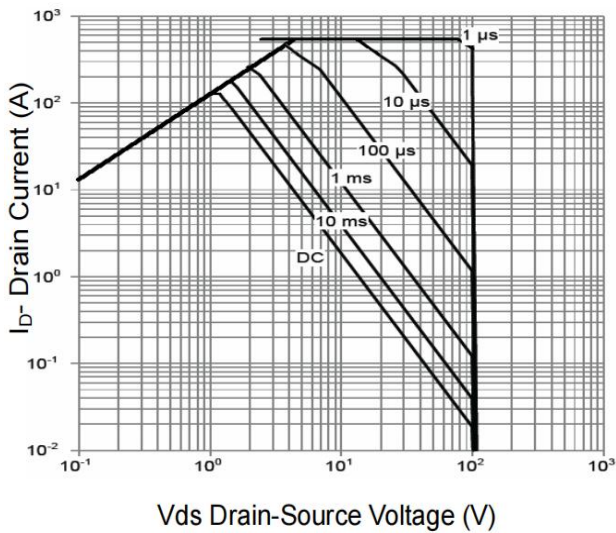
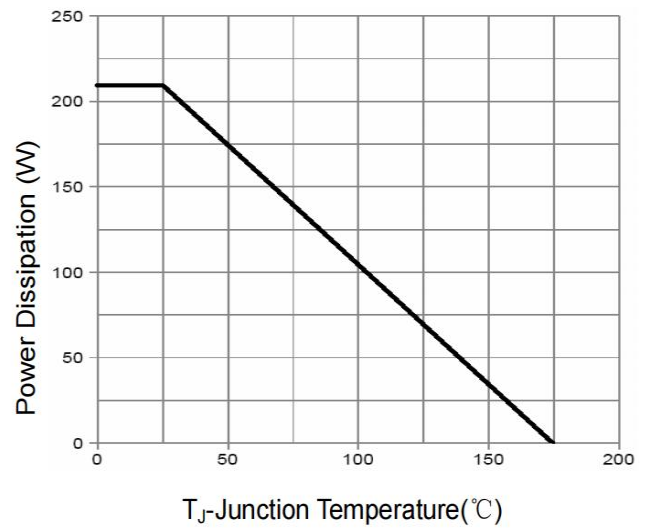
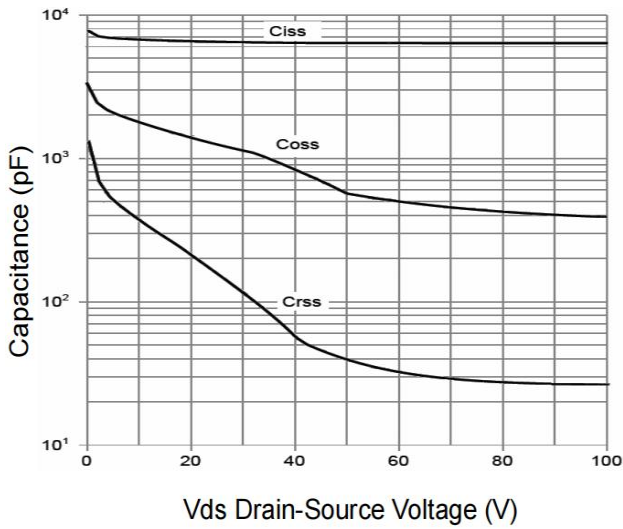
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$BV_{DSS}$	100	-	-	<b>V</b>
Gate Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	$I_{GSS}$	-	-	$\pm 100$	<b>nA</b>
Drain-Source Leakage Current	$V_{DS} = 100 V, V_{GS} = 0 V$	$I_{DSS}$	-	-	1	<b><math>\mu A</math></b>
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	2.0	-	4.0	<b>V</b>
Drain-Source on-Resistance 4	$V_{GS}=10V, I_D=20A$	$R_{DS(ON)}$	-	4.5	5.6	<b>m<math>\Omega</math></b>
Forward Transconductance4	$V_{DS}=5V, I_D=65A$	$g_{fs}$	-	130	-	<b>S</b>
Input Capacitance	$V_{DS}=50V$ $V_{GS}=0V$ $f=1MHz$	$C_{iss}$	-	4350	-	<b><math>\mu F</math></b>
Output Capacitance		$C_{oss}$	-	2150	-	
Reverse Transfer Capacitance		$C_{rss}$	-	220	-	
Total Gate Charge	$V_{GS}=10V$ $V_{DS}=50V$ $I_D=65A$	$Q_g$	-	110	-	<b>nC</b>
Gate-Source Charge		$Q_{gs}$	-	33	-	
Gate-Drain Charge		$Q_{gd}$	-	30	-	
Turn-on delay time	$V_{GS}=10V$ $V_{DD}=50V$ $R_G=3\Omega$ $I_D=65A$	$t_{d(on)}$	-	23	-	<b>ns</b>
Rise Time		$T_r$	-	15	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	48	-	
Fall Time		$t_f$	-	16	-	
Body Diode Reverse Recovery Time(Note2)	$T_J = 25^\circ C, I_F= 65A$ $di / dt = 100 A/\mu s$	$t_{rr}$	-	70	-	<b>ns</b>
Body Diode Reverse Recovery Charge(Note2)		$Q_{rr}$	-	117	-	<b>nC</b>
Diode Forward Voltage	$V_{GS}=0V, I_S=40A, T_J=25^\circ C$	$V_{SD}$	-	0.86	1.2	<b>V</b>
Continuous Source Current		$I_S$	-	-	120	<b>A</b>

Note2:Pulse test: 300  $\mu s$  pulse width, 2 % duty cycle

Ratings and Characteristic Curves



Ratings and Characteristic Curves



**Ordering information**

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
STB15810	TO-263C	0.04oz(1.16g)	800pcs/reel	1600pcs/box 8000pcs/Carton

**Package Dimensions**
**TO-263C**

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	0.00	0.15	0.000	0.006
A2	4.30	4.55	0.169	0.179
B	1.10	1.50	0.043	0.059
b	0.70	0.90	0.028	0.035
b1	1.20	1.50	0.047	0.059
c	0.30	0.60	0.012	0.024
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
L	15.00	15.30	0.591	0.602
L1	5.20	5.40	0.205	0.213
L2	2.40	2.60	0.094	0.102
L3	1.60	1.80	0.063	0.071