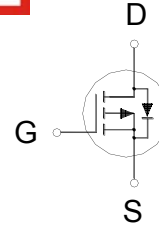


勝特力材料 886-3-5773766  
 勝特力电子(上海) 86-21-34970699  
 勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)



**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-30V	51mΩ	-4A

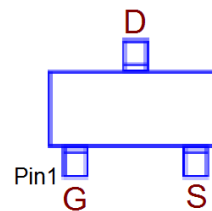


**Features**

- Pb-Free, Halogen Free and RoHS compliant.
- Low  $R_{DS(on)}$  to Minimize Conduction Losses.
- Ohmic Region Good  $R_{DS(on)}$  Ratio.
- Optimized Gate Charge to Minimize Switching Losses.

**Applications**

- Protection Circuits Applications.
- Logic/Load Switch Circuits Applications.



G: GATE  
 D: DRAIN  
 S: SOURCE

**ABSOLUTE MAXIMUM RATINGS ( $T_A = 25\text{ °C}$  Unless Otherwise Noted)**

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		$V_{GS}$	±20	V
Continuous Drain Current	$T_A = 25\text{ °C}$	$I_D$	-4	A
	$T_A = 70\text{ °C}$		-3	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-16	
Power Dissipation <sup>3</sup>	$T_A = 25\text{ °C}$	$P_D$	1.4	W
	$T_A = 70\text{ °C}$		0.9	
Operating Junction & Storage Temperature Range		$T_j, T_{stg}$	-55 to 150	°C

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE		SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient <sup>2</sup>	$t \leq 10s$	$R_{\theta JA}$		90	°C/W
Junction-to-Ambient <sup>2</sup>	Steady-State	$R_{\theta JA}$		130	

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper.

<sup>3</sup>The Power dissipation is based on  $R_{\theta JA} t \leq 10s$  value.

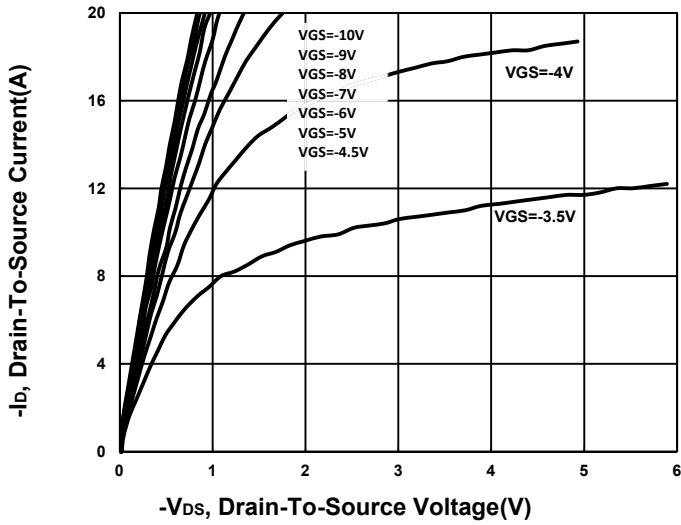
**ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT		
			MIN	TYP	MAX			
<b>STATIC</b>								
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-30			V		
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1.3	-1.6	-2.3			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA		
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -24V, V <sub>GS</sub> = 0V			-1	μA		
		V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55 °C			-10			
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4A		53	85	mΩ		
		V <sub>GS</sub> = -10V, I <sub>D</sub> = -4A		37	51			
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -4A		11		S		
<b>DYNAMIC</b>								
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -15V, f = 1MHz		601		pF		
Output Capacitance	C <sub>oss</sub>			83				
Reverse Transfer Capacitance	C <sub>rss</sub>			65				
Total Gate Charge <sup>2</sup>	Q <sub>g(VGS=-10V)</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -4A		12		nC		
	Q <sub>g(VGS=-4.5V)</sub>			6				
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			1.7				
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			2.7				
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>		V <sub>DD</sub> = -15V, V <sub>GS</sub> = -10V I <sub>D</sub> ≅ -4A, R <sub>G</sub> = 6Ω		17			nS
Rise Time <sup>2</sup>	t <sub>r</sub>				24			
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			18				
Fall Time <sup>2</sup>	t <sub>f</sub>			39				
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>								
Continuous Current	I <sub>S</sub>				-1	A		
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = -4A, V <sub>GS</sub> = 0V			-1.1	V		
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = -4A, dI <sub>F</sub> /dt = 100A / μS		9		nS		
Reverse Recovery Charge	Q <sub>rr</sub>			2.7		nC		

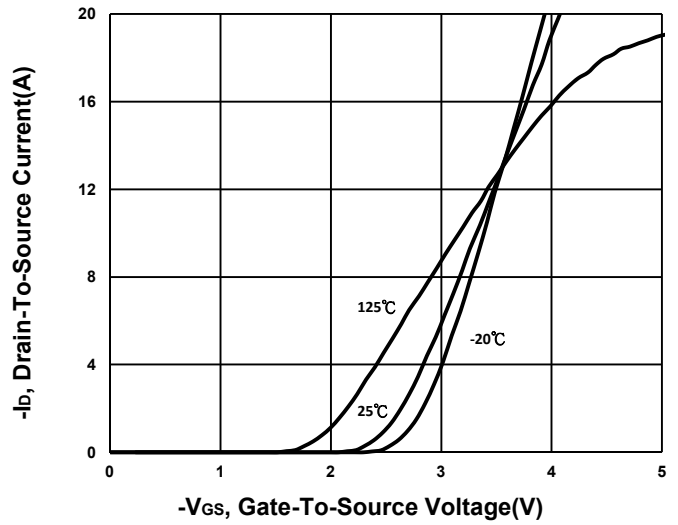
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

<sup>2</sup>Independent of operating temperature.

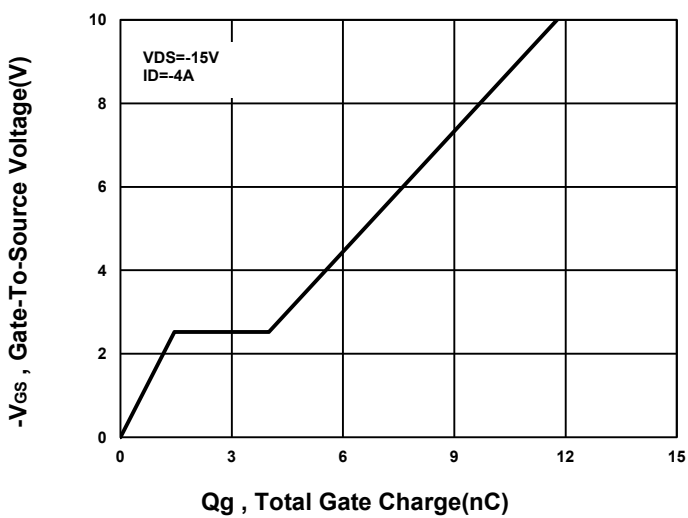
**Output Characteristics**



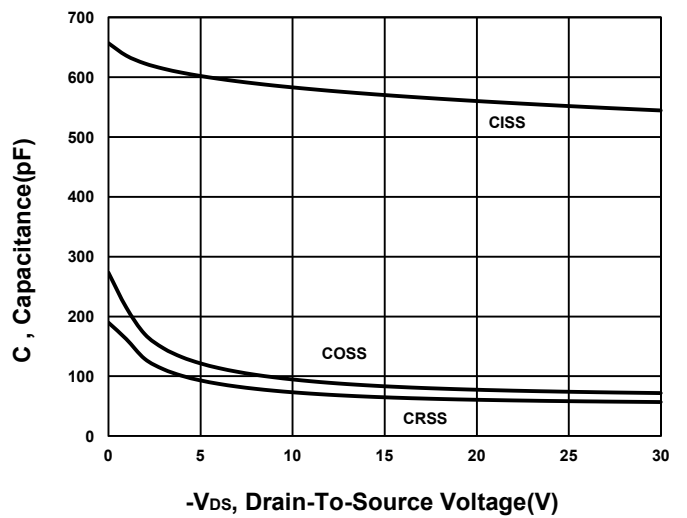
**Transfer Characteristics**



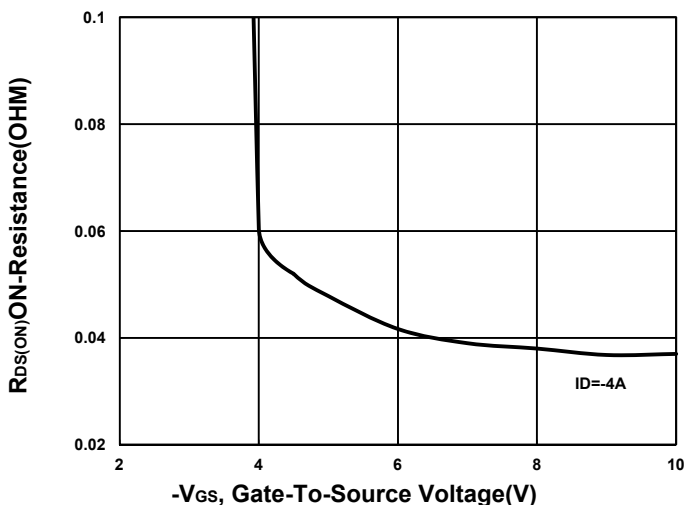
**Gate charge Characteristics**



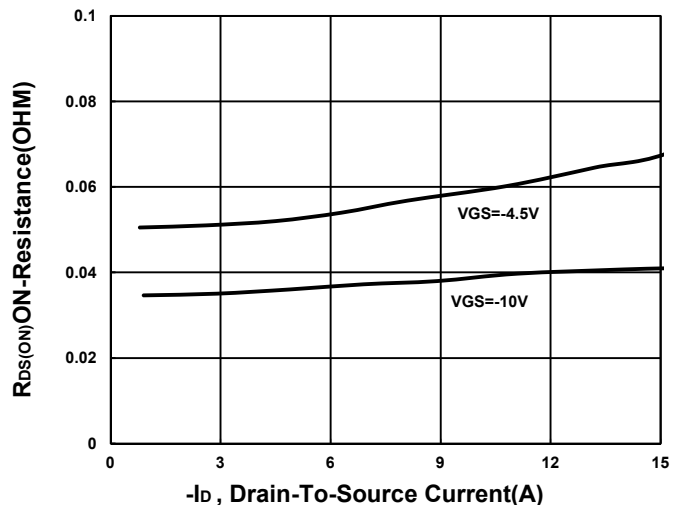
**Capacitance Characteristic**



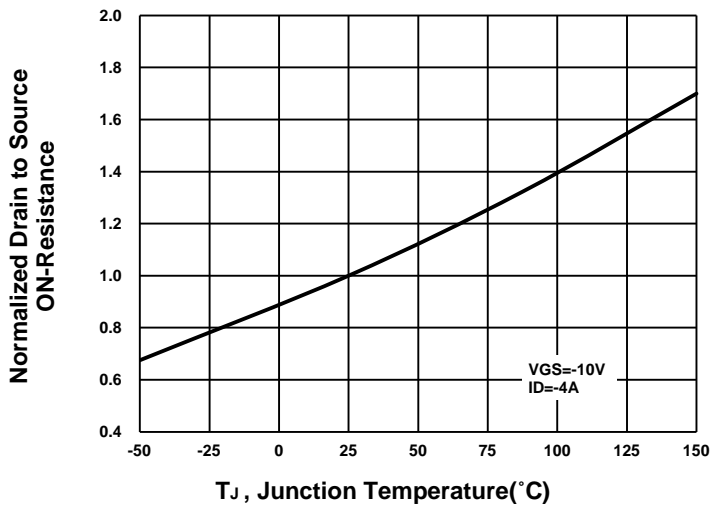
**On-Resistance VS Gate-To-Source**



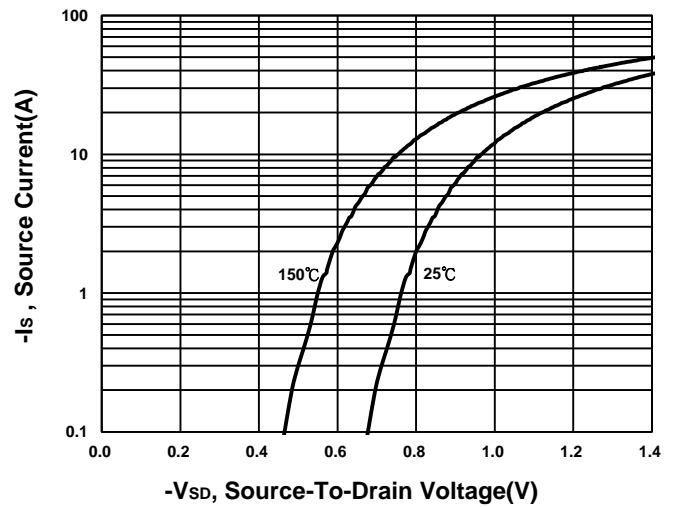
**On-Resistance VS Drain Current**



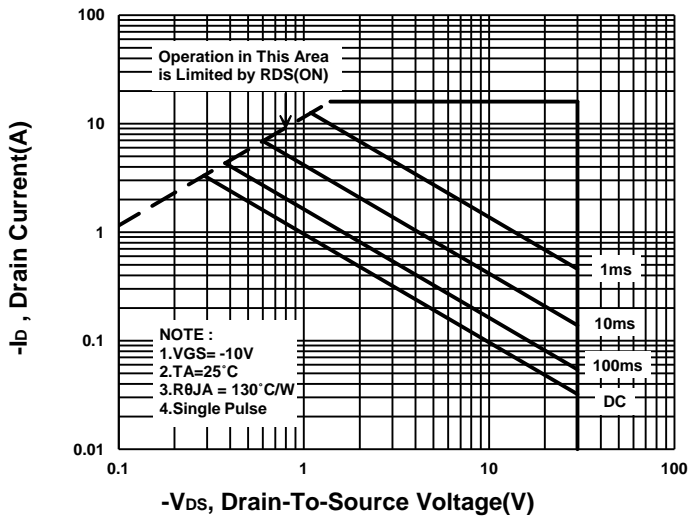
**On-Resistance VS Temperature**



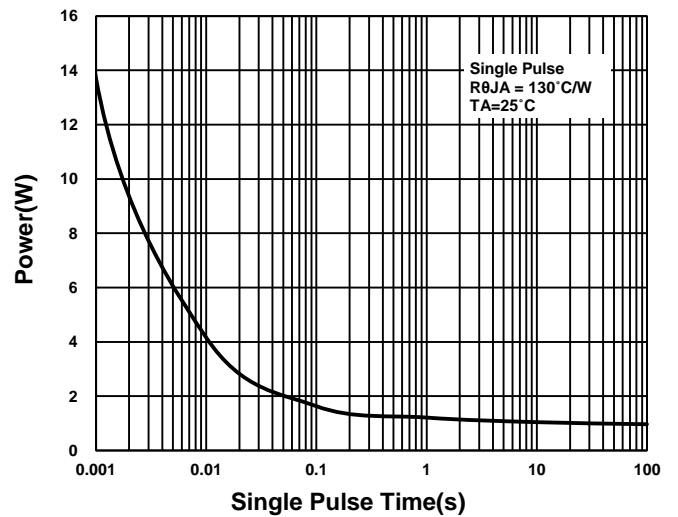
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

