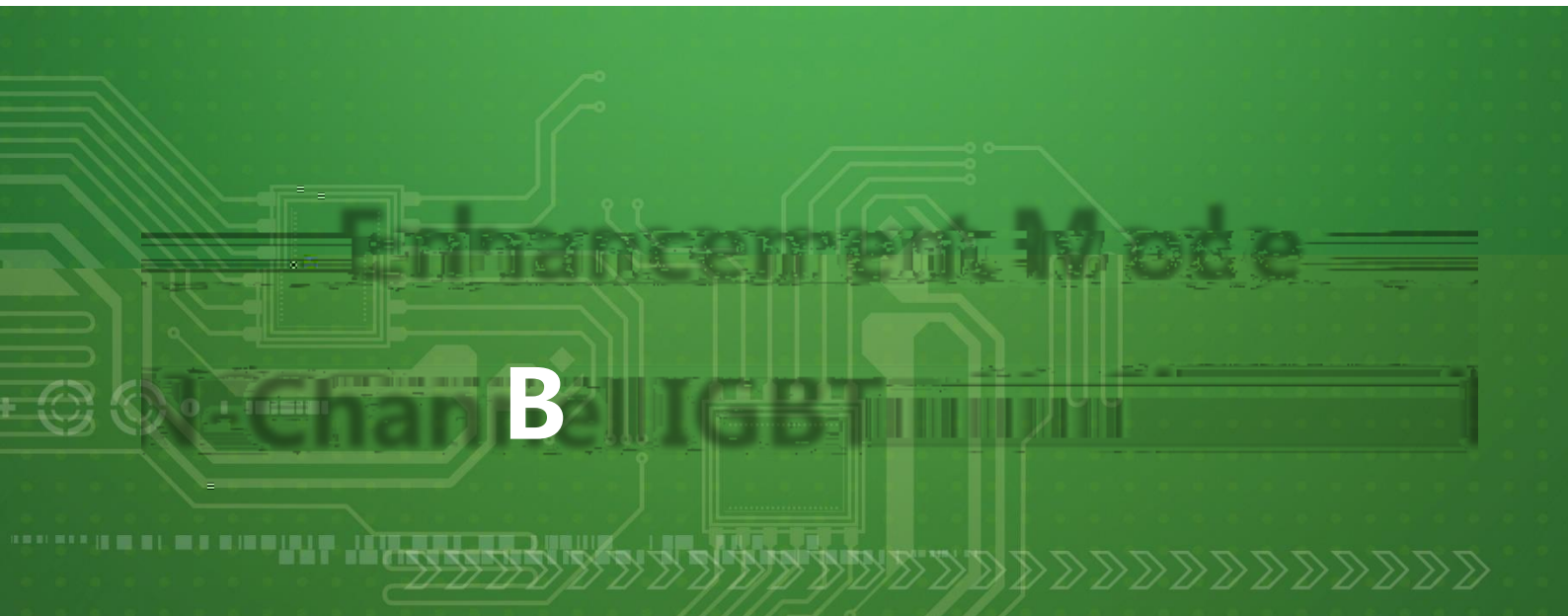


ORIENTAL



Advanced TGBT™ technology

Monolithically integrated diode

Excellent conduction and switching loss

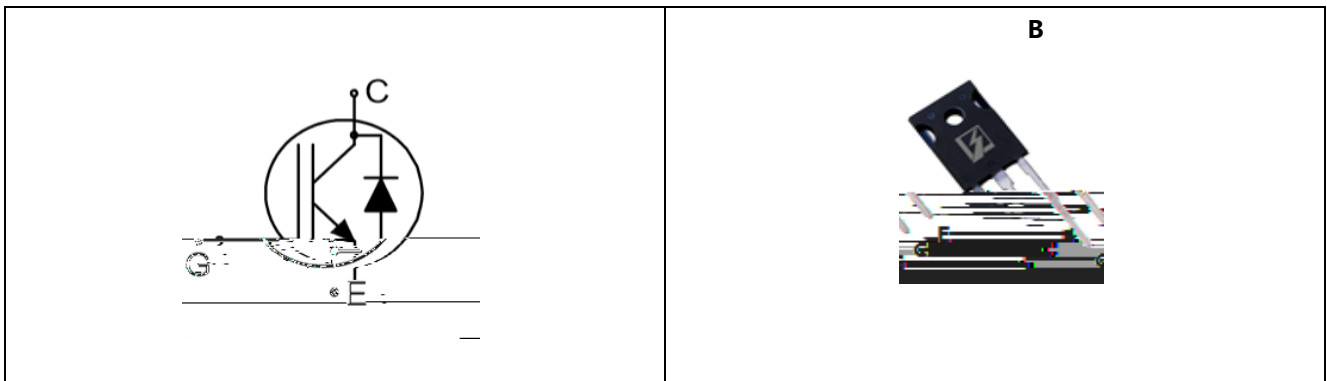
Excellent stability and uniformity

Induction heating

Soft switching applications

OST20N135HRF uses advanced Oriental-Semi's patented Trident-Gate Bipolar Transistor (TGBT™) technology to provide extremely low  $V_{CE(sat)}$ , low gate charge, and excellent switching performance. This device is suitable for resonant induction heating applications.

$V_{CES, min}$	1350 V
$I_{C, pulse}$	60 A
$V_{CE(sat), typ@V_{GE}=15 V}$	1.6 V
$Q_g$	71.5 nC



at  $T_j=25^\circ\text{C}$  unless otherwise noted

Collector emitter voltage	$V_{CES}$	1350	V
Gate emitter voltage	$V_{GES}$	$\pm 20$	V
Transient Gate emitter voltage, $T_P \leq 10\mu\text{s}$ , $D < 0.01$		$\pm 30$	V
Continuous collector current <sup>1)</sup> , $T_C=25^\circ\text{C}$	$I_C$	40	A
Continuous collector current <sup>1)</sup> , $T_C=100^\circ\text{C}$		20	
Pulsed collector current <sup>2)</sup> , $T_C=25^\circ\text{C}$	$I_{C, pulse}$	60	A
Diode forward current <sup>1)</sup> , $T_C=25^\circ\text{C}$	$I_F$	40	A
Diode forward current <sup>1)</sup> , $T_C=100^\circ\text{C}$		20	
Diode pulsed current <sup>2)</sup> , $T_C=25^\circ\text{C}$	$I_{F, pulse}$	60	A
Power dissipation <sup>3)</sup> , $T_C=25^\circ\text{C}$	$P_D$	290	W
Power dissipation <sup>3)</sup> , $T_C=100^\circ\text{C}$		145	W
Operation and storage temperature	$T_{stg}, T_j$	-55 to 150	$^\circ\text{C}$

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IGBT thermal resistance, junction-case	$R_{\theta JC}$	0.43	°C/W
Diode thermal resistance, junction-case	$R_{\theta JC}$	0.43	°C/W
Thermal resistance, junction-ambient <sup>4)</sup>	$R_{\theta JA}$	40	°C/W

at  $T_j=25$  °C unless otherwise specified

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Total gate charge	$Q_g$		71.5		nC	$I_C=20\text{ A},$ $V_{CC}=1080\text{ V},$ $V_{GE}=15\text{ V}$
Gate-emitter charge	$Q_{ge}$		15.4		nC	
Gate-collector charge	$Q_{gc}$		32.8		nC	

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- 1) Calculated continuous current based on maximum allowable junction temperature.
- 2) Repetitive rating, pulse width limited by maximum junction temperature.
- 3)  $P_d$  is based on maximum junction temperature, using junction-case thermal resistance.
- 4) The value of  $R_{\theta JA}$  is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with  $T_a=25\text{ }^\circ\text{C}$ .

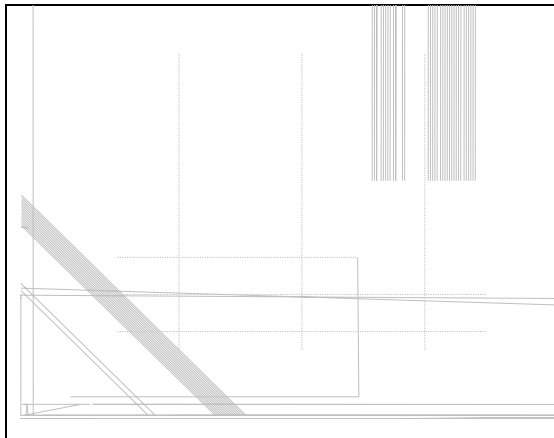


Figure 1. Typical output characteristics  
( $T_{vj}=25^{\circ}\text{C}$ )

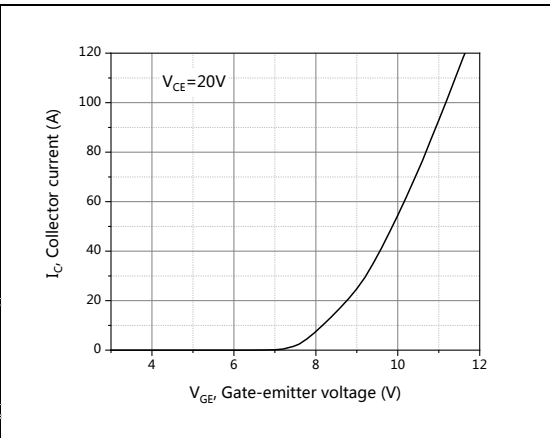


Figure 2. Typical transfer characteristics  
( $T_{vj}=25^{\circ}\text{C}$ )

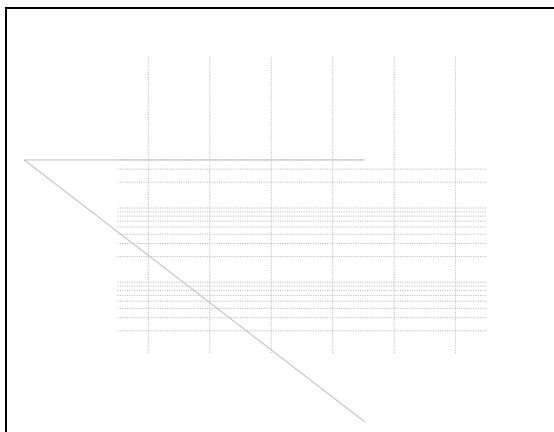


Figure 3. Typical capacitance  
( $V_{GE}=0\text{V}$ ,  $f=1\text{MHz}$ )



Figure 4. Typical gate charge

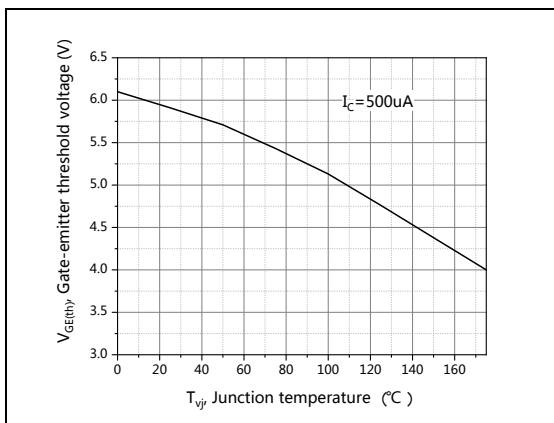


Figure 5. Gate-emitter threshold voltage

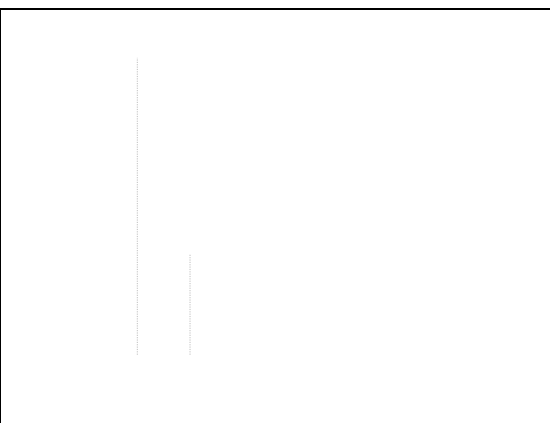
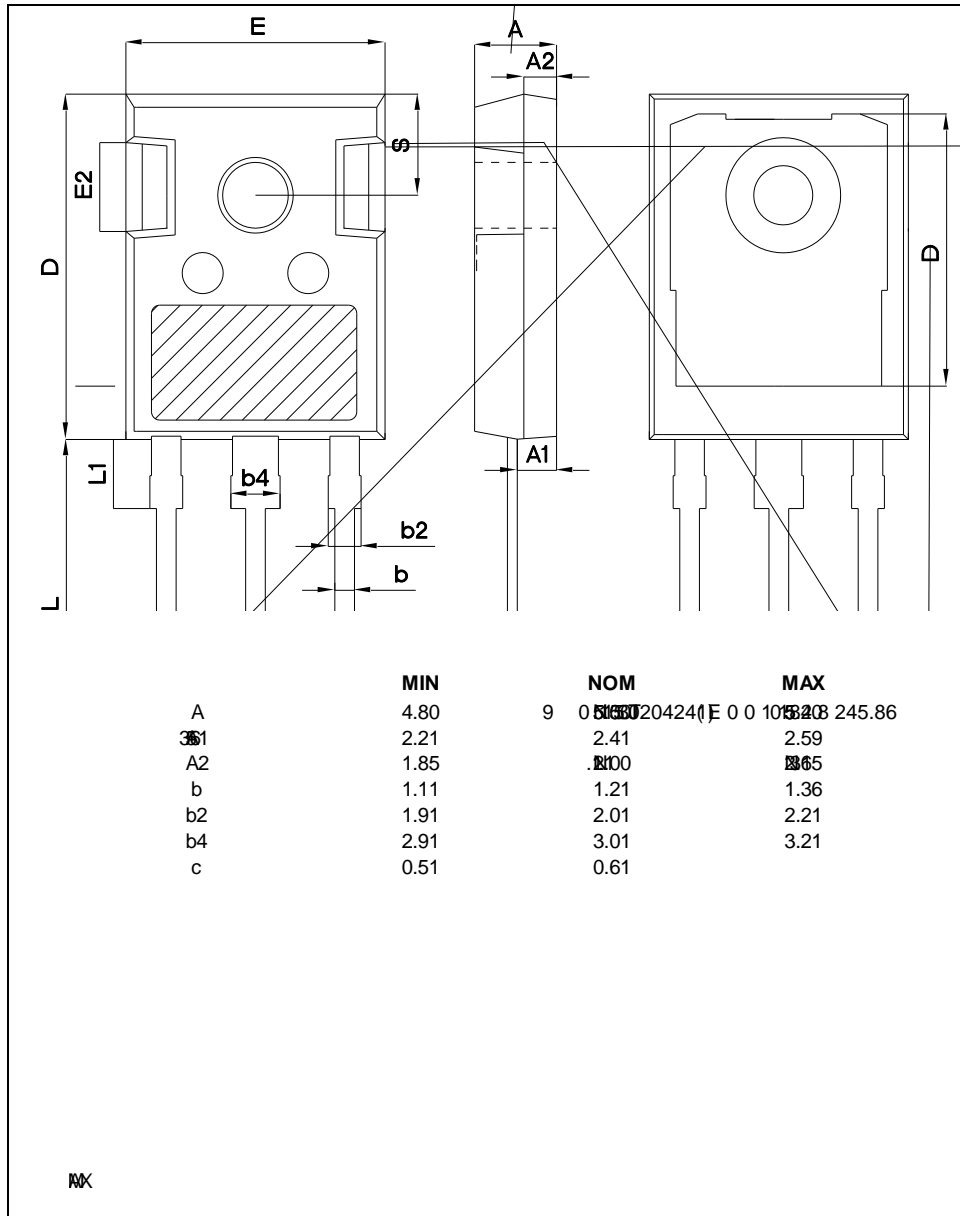


Figure 6. Typical collector-emitter voltage





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TO247	30	11	330	6	1980

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OST20N135HRF	TO247	yes	yes	yes