0 0 0 - 0 0 0 0 - 0
0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0

- 0 0
- 0 0
- 0 0
- 0 0

- 0 0 0
- 0 0 0 0

Parameter	Value	Unit
$V_{CES,\ min}$ @ 25 °C **1**		

Absolute Maximum Ratings at T_{vj}=25 unless otherwise noted

Parameter	Symbol	Value	Unit
Collector emitter voltage	V_{CES}	650	V
Gate emitter voltage	V_{GES}	±20	V
Transient gate emitter voltage, T_P µs, D<0.01		±30	V
Continuous collector current[1], T_C=25 °C	I_C	30	A
Continuous collector current[1], T_C=100 °C		15	A
Pulsed collector current[2], T_C=25 °C	$I_{C,\ pulse}$	45	A
Diode forward current[1], T_C=25 °C	I_F	30	A
Diode forward current[1], T_C=100 °C		15	A
Diode pulsed current[2], T_C=25 °C	$I_{F,\ pulse}$	45	A
Power dissipation[3], T_C=25 °C	P_D	250	W
Operation and storage temperature	T_{stg}, T_{vj}	-55 to 175	°C
Short circuit withstand time V_{GE}=15 V, V_{CC} 400 V Allowed number of short circuits<1000 Time between short circuits: 1.0 S T_{vj}=150 °C	t_{SC}	10	s

Thermal Characteristics

Parameter	Symbol	Value	Unit
IGBT thermal resistance, junction-case	R	0.6	°C/W
Diode thermal resistance, junction-case	R	2.0	°C/W
Thermal resistance, junction-ambient[4]	R	75	°C/W

Electrical Characteristics at T_{vj}=25 unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Collector-emitter breakdown voltage	$V_{(BR)CES}$	650			V	V_{GE}=0 V, I_C=0.5 mA
Collector-emitter saturation voltage	$V_{CE(sat)}$		1.65	2.0	V	V_{GE}=15 V, I_C=15 A T_{vj}=25 °C
			1.8		V	V_{GE}=15 V, I_C=15 A, T_{vj}=125 °C
			1.9			V_{GE}=15 V, I_C=15 A, T_{vj}=175 °C
Gate-emitter threshold voltage	$V_{GE(th)}$	4.4	5.2	6.0	V	V_{CE}=V_{GE}, I_D=0.5 mA
Diode forward voltage	V_F		1.65	2.0	V	V_{GE}=0 V, I_F=15 A T_{vj}=25 °C
			1.8			V_{GE}=0 V, I_F=15 A, T_{vj}=125 °C
			1.9			V_{GE}=0 V, I_F=15 A, T_{vj}=175 °C
Gate-emitter leakage current	I_{GES}			100	nA	V_{CE}=0 V, V_{GE}=20 V
Zero gate voltage collector current	I_{CES}			10		V_{CE}=650 V, V_{GE}=0 V

Typ.	Max.	Unit	Test condition
2015		pF	V_{GE}=0 V, V_{CE}=25 V,

Electrical Characteristics Diagrams

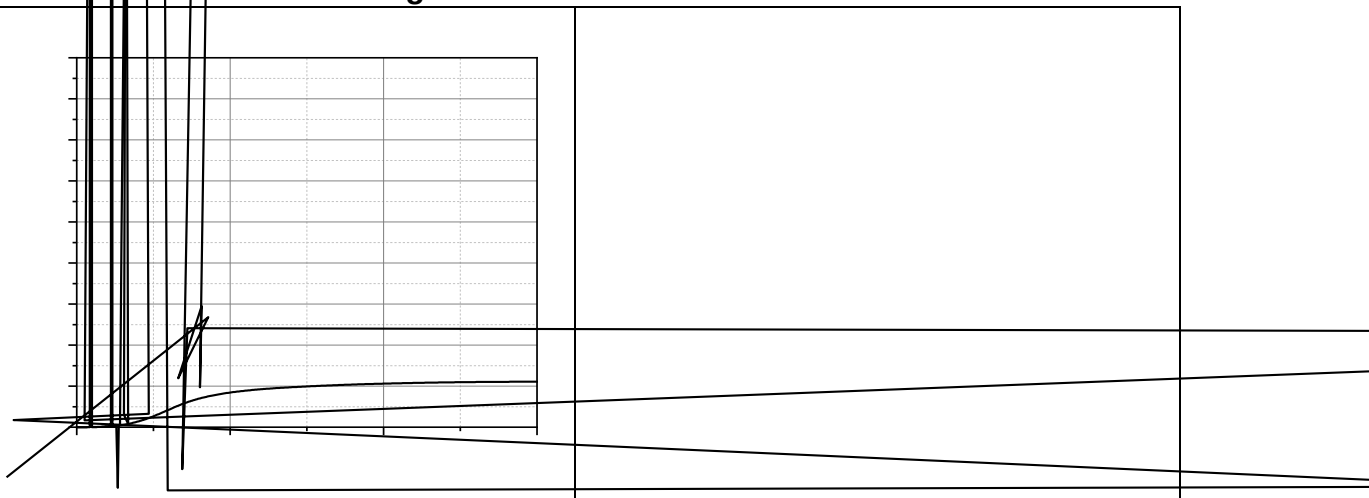

Figure 1. Typical output characteristics
(T_{vj}=25 °C)

Figure 2. Typical output characteristics
(T_{vj}=150 °C)

Figure 3. Typical transfer characteristics
(V_{CE}=20 V)

Figure 4. Typical capacitance
(V_{GE}=0V, =100 kHz)

Figure 5. Typical gate charge

Figure 6. Gate-emitter threshold voltage

468101214160510152025303540 45IC,Collector current (A)

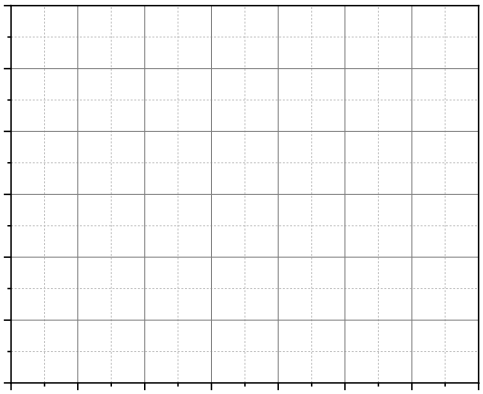

Figure 7. Typical collector-emitter voltage

Figure 8. Forward characteristic of diode

Figure 9. IGBT transient thermal impedance

Figure 10. Diode transient thermal impedance

Package Information

Symbol	mm		
	Min	Nom	Max
A	4.40	4.50	4.60
A1	1.27	1.30	1.33
A2	2.30	2.40	2.50
b	0.70	-	0.90
b1	1.27	-	1.40
c	0.45	0.50	0.60
D	15.30	15.70	16.10
D1	9.10	9.20	9.30
D2	13.10	-	13.70

Ordering Information

Package Type	Unit063.4 7