

Features

- High Speed Smooth Switching Device for Hard and Soft Switching
- $V_{ce(sat)}$ with Positive Temperature Coefficient
- High Ruggedness, Good Thermal Stability
- Very Tight Parameter Distribution
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

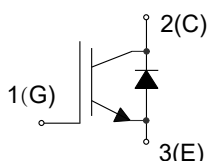
- Operating Junction Temperature Range : -40°C to $+175^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- IGBT Thermal Resistance: 0.38°C/W Junction to Case
- Diode Thermal Resistance: 0.45°C/W Junction to Case
- Thermal Resistance: 40°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CE}	650	V
DC Collector Current ⁽²⁾	I_C	$T_C=25^{\circ}\text{C}$	75
		$T_C=100^{\circ}\text{C}$	75
Pulsed Collector Current ⁽³⁾	$I_{C,pluse}$	300	A
Diode Forward Current ⁽²⁾	I_F	$T_C=25^{\circ}\text{C}$	75
		$T_C=100^{\circ}\text{C}$	75
Diode Pulsed Current ⁽³⁾	$I_{F,pluse}$	300	A
Gate-Emitter Voltage	V_{GE}	± 20	V
Transient Gate-Emitter Voltage ⁽⁴⁾		± 30	
Short Circuit Withstand Time ⁽⁵⁾ $V_{GE}=15\text{V}, V_{CC}=600\text{V}, T_J \leq 150^{\circ}\text{C}$	t_{SC}	5	μs
Power Dissipation	P_D	$T_C=25^{\circ}\text{C}$	395
		$T_C=100^{\circ}\text{C}$	195

Note:

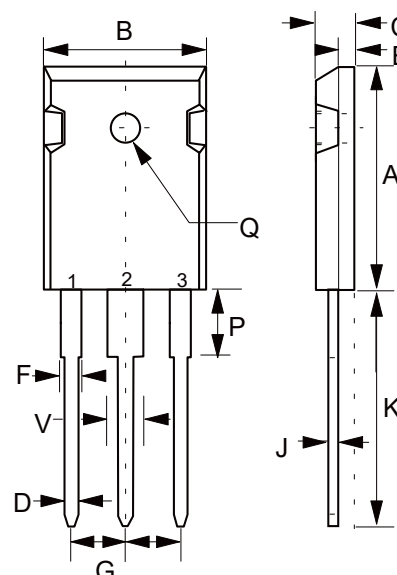
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Limited by T_{Jmax} .
3. T_p limited by T_{Jmax} .
4. $T_p \leq 10\mu\text{s}$, Duty Cycle < 1%
5. Allowed number of short circuits: < 1000; time between short circuits: > 1s.

Internal Structure



Trench and Field Stop IGBT 650V 75A

TO-247



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.787	0.866	20.00	22.00	
B	0.598	0.638	15.20	16.20	
C	0.185	0.208	4.70	5.30	
D	0.035	0.059	0.90	1.50	
E	0.059	0.094	1.50	2.40	
F	0.067	0.091	1.70	2.30	
J	0.019	0.031	0.48	0.80	
K	0.748	0.833	19.00	21.15	
P	0.122	0.189	3.10	4.80	
Q	0.118	0.150	3.00	3.80	Φ
V	0.106	0.134	2.70	3.40	
G	0.197	0.224	5.00	5.70	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	$V_{GE}=0V, I_C=250\mu A$	650			V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=75A, T_J=25^\circ C$		1.65	2.1	V
		$V_{GE}=15V, I_C=75A, T_J=125^\circ C$		1.85		
		$V_{GE}=15V, I_C=75A, T_J=150^\circ C$		1.95		
G-E Threshold Voltage	$V_{GE(th)}$	$I_C=250\mu A, V_{CE}=V_{GE}$	3.9	5.0	6.1	V
C-E Leakage Current	I_{CES}	$V_{CE}=650V, V_{GE}=0V$			1	mA
		$V_{CE}=650V, V_{GE}=0V, T_J=150^\circ C$			5	
G-E Leakage Current	I_{GES}	$V_{CE}=0V, V_{GE}=\pm 20V$			100	nA
Dynamic Characteristics						
Input Capacitance	C_{ies}	$V_{CE}=25V, V_{GE}=0V, f=1MHz$		7440		pF
Output Capacitance	C_{oes}			240		
Reverse Transfer Capacitance	C_{res}			135		
Gate Charge	Q_g	$V_{CC}=300V, I_C=75A, V_{GE}=15V$		130		nC
IGBT Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	$V_{CC}=400V, I_C=75A, V_{GE}=-15/15V, R_G=8\Omega, L_S=60nH, T_J=25^\circ C$		34		ns
Rise Time	t_r			153		
Turn-Off Delay Time	$t_{d(off)}$			183		
Fall Time	t_f			67		
Turn-On Energy	E_{on}			2.64		mJ
Turn-Off Energy	E_{off}			0.92		
Turn-On Delay Time	$t_{d(on)}$	$V_{CC}=400V, I_C=75A, V_{GE}=-15/15V, R_G=8\Omega, L_S=60nH, T_J=125^\circ C$		37		ns
Rise Time	t_r			157		
Turn-Off Delay Time	$t_{d(off)}$			198		
Fall Time	t_f			68		
Turn-On Energy	E_{on}			4.35		mJ
Turn-Off Energy	E_{off}			1.12		
Turn-On Delay Time	$t_{d(on)}$	$V_{CC}=400V, I_C=75A, V_{GE}=-15/15V, R_G=8\Omega, L_S=60nH, T_J=150^\circ C$		40		ns
Rise Time	t_r			163		
Turn-Off Delay Time	$t_{d(off)}$			208		
Fall Time	t_f			73		
Turn-On Energy	E_{on}			4.57		mJ
Turn-Off Energy	E_{off}			1.20		

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Diode Characteristics						
Diode Forward Voltage	V_F	$V_{GE}=0V, I_F=75A, T_J=25^\circ C$		1.48	2	V
		$V_{GE}=0V, I_F=75A, T_J=125^\circ C$		1.6		
		$V_{GE}=0V, I_F=75A, T_J=150^\circ C$		1.6		
Reverse Recovery Current	I_{rr}	$V_R=400V, I_F=75A,$ $di_F/dt=-460A/\mu s, T_J=25^\circ C$		17		A
Reverse Recovery Charge	Q_{rr}			2.43		μC
Reverse Recovery Energy	E_{rec}			0.68		mJ
Reverse Recovery Current	I_{rr}	$V_R=400V, I_F=75A,$ $di_F/dt=-460A/\mu s, T_J=125^\circ C$		23		A
Reverse Recovery Charge	Q_{rr}			3.37		μC
Reverse Recovery Energy	E_{rec}			0.91		mJ
Reverse Recovery Current	I_{rr}	$V_R=400V, I_F=75A,$ $di_F/dt=-460A/\mu s, T_J=150^\circ C$		25		A
Reverse Recovery Charge	Q_{rr}			3.72		μC
Reverse Recovery Energy	E_{rec}			0.99		mJ

Curve Characteristics

Fig. 1 - Typical Output Characteristics
($V_{GE}=15V$)

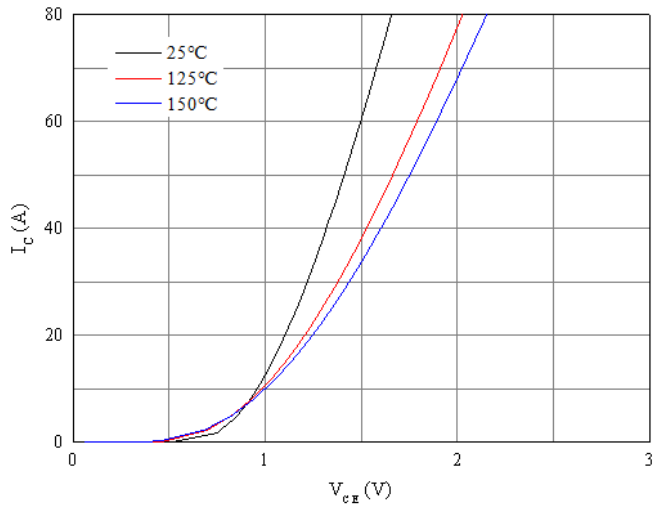


Fig. 2 - Typical Output Characteristics
($T_J=150\text{ C}$)

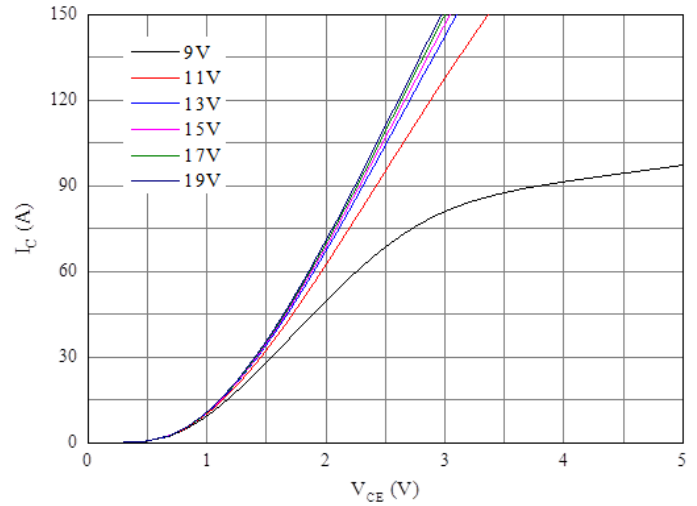


Fig. 3 - Typical transfer Characteristic
($V_{CE}=20V$)

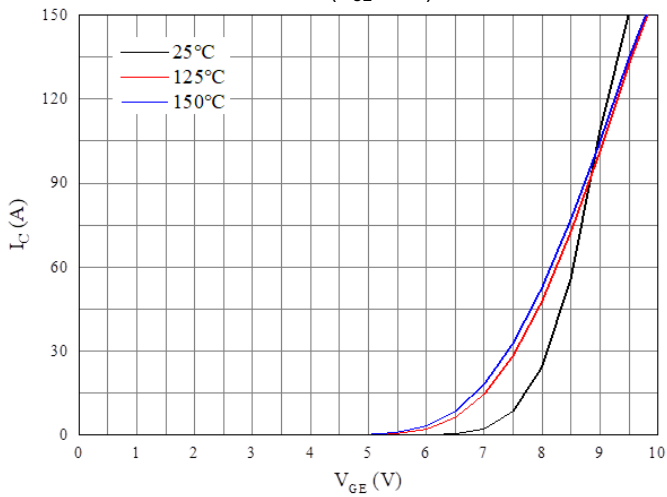


Fig. 4 - Forward Characteristic of Diode

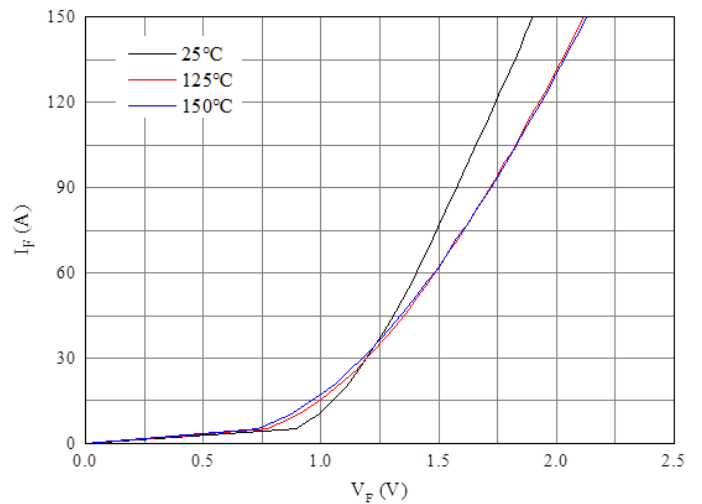


Fig. 5 - Switching Losses of IGBT
($V_{GE}=\pm 15V$, $R_{Gon}=8\Omega$, $R_{Goff}=8\Omega$, $V_{CE}=400V$)

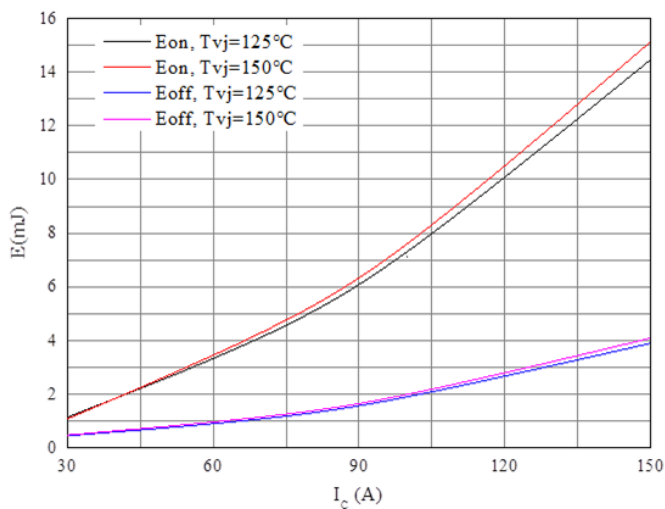
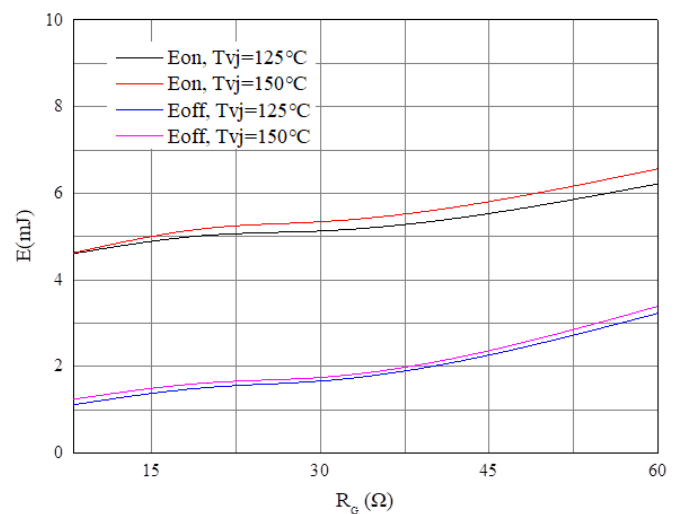


Fig. 6 - Switching Losses of IGBT
($V_{GE}=\pm 15V$, $I_C=75A$, $V_{CE}=400V$)



Curve Characteristics

Fig. 7 - Switching Losses of Diode
($R_{Gon}=8\Omega$, $V_{CE}=400V$)

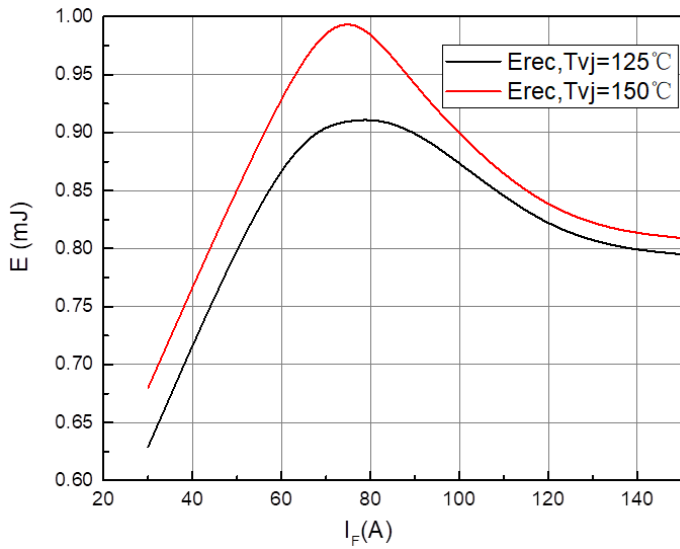


Fig. 8 - Switching Losses of Diode
($I_F=75A$, $V_{CE}=400V$)

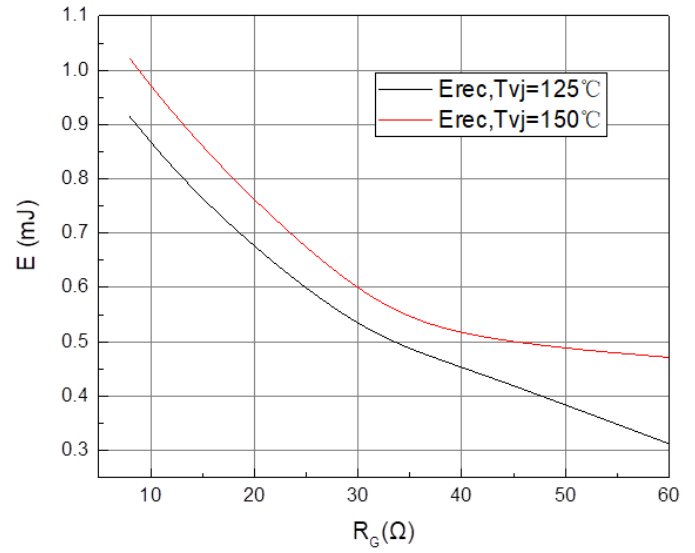
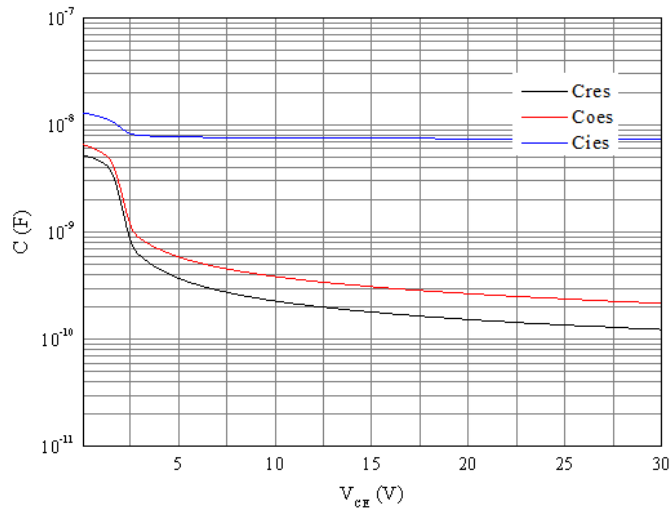


Fig. 9 - Capacitance Characteristics



Ordering Information

Device	Packing
Part Number-BP	Tube: 30pcs/Tube, 1800pcs/Ctn

IMPORTANT NOTICE

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications, enhancements, improvements, or other changes. **Micro Commercial Components Corp.** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp.** and all the companies whose products are represented on our website, harmless against all damages. **Micro Commercial Components Corp.** products are sold subject to the general terms and conditions of commercial sale, as published at <https://www.mccsemi.com/Home/TermsAndConditions>.

LIFE SUPPORT

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

CUSTOMER AWARENESS

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

单击下面可查看定价，库存，交付和生命周期等信息

[>>MCC\(美微科\)](#)