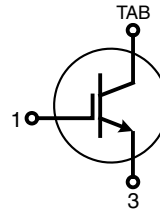


# High Voltage IGBT

Short Circuit SOA Capability  
Square RBSOA

$I_{C25} = 38 \text{ A}$   
 $V_{CES} = 1200 \text{ V}$   
 $V_{CE(sat) \text{ typ}} = 2.4 \text{ V}$



IGBT			
Symbol	Conditions	Maximum Ratings	
$V_{CES}$	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	1200	V
$V_{GES}$		$\pm 20$	V
$I_{C25}$	$T_C = 25^{\circ}\text{C}$	38	A
$I_{C90}$	$T_C = 90^{\circ}\text{C}$	25	A
$I_{CM}$ $V_{CEK}$	$V_{GE} = 15 \text{ V}; R_G = 82 \Omega; T_{VJ} = 125^{\circ}\text{C}$ RBSOA, clamped inductive load; $L = 100 \mu\text{H}$	35	A
		$V_{CES}$	
$t_{SC}$ (SCSOA)	$V_{CE} = V_{CES}; V_{GE} = \pm 15 \text{ V}; R_G = 82 \Omega; T_{VJ} = 125^{\circ}\text{C}$ non-repetitive	10	$\mu\text{s}$
$P_{tot}$	$T_C = 25^{\circ}\text{C}$	200	W

### Features

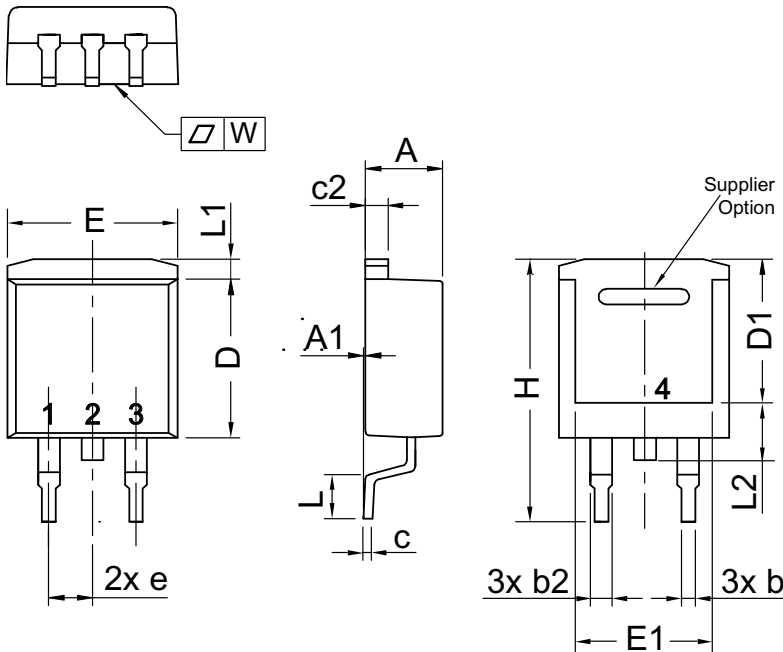
- **NPT IGBT**
  - low saturation voltage
  - positive temperature coefficient for easy paralleling
- **TO-263 package**
  - SMD assembly
  - industry standard outline

### Applications

- **drives**
- **power supplies**
  - switched mode power supplies
  - uninterruptible power supplies

Symbol	Conditions	Characteristic Values				
		$(T_{VJ} = 25^{\circ}\text{C}, \text{ unless otherwise specified})$				
		min.	typ.	max.		
$V_{CE(sat)}$	$I_C = 20 \text{ A}; V_{GE} = 15 \text{ V};$	$T_{VJ} = 25^{\circ}\text{C}$		2.4	3.0	V
		$T_{VJ} = 125^{\circ}\text{C}$		2.6		V
$V_{GE(th)}$	$I_C = 0.6 \text{ mA}; V_{GE} = V_{CE}$	4.5		6.5	V	
$I_{CES}$	$V_{CE} = V_{CES}; V_{GE} = 0 \text{ V};$		0.8	0.8	mA	
	$T_{VJ} = 25^{\circ}\text{C}$				mA	
	$T_{VJ} = 125^{\circ}\text{C}$				mA	
$I_{GES}$	$V_{CE} = 0 \text{ V}; V_{GE} = \pm 20 \text{ V}$			200	nA	
$t_{d(on)}$	Inductive load; $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 600 \text{ V}; I_C = 20 \text{ A}$ $V_{GE} = \pm 15 \text{ V}; R_G = 82 \Omega$		100		ns	
$t_r$			75		ns	
$t_{d(off)}$			500		ns	
$t_f$			70		ns	
$E_{on}$			3.1		mJ	
$E_{off}$			2.4		mJ	
$C_{ies}$	$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; f = 1 \text{ MHz}$		1000		pF	
$Q_{Gon}$	$V_{CE} = 600 \text{ V}; V_{GE} = 15 \text{ V}; I_C = 18 \text{ A}$		70		nC	
$R_{thJC}$				0.63	K/W	

Component				
Symbol	Conditions	Maximum Ratings		
$T_{vj}$		-55...+150	°C	
$T_{stg}$		-55...+125	°C	
Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
Weight			2	g



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.029
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
E	9.65	10.41	0.380	0.410
E1	6.22	8.20	0.245	0.323
e	2,54 BSC		0,100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
L2	1.02	1.52	0.040	0.060
W	typ. 0.02	0.040	typ. 0.0008	0.0016

All dimensions conform with and/or are within JEDEC standard.

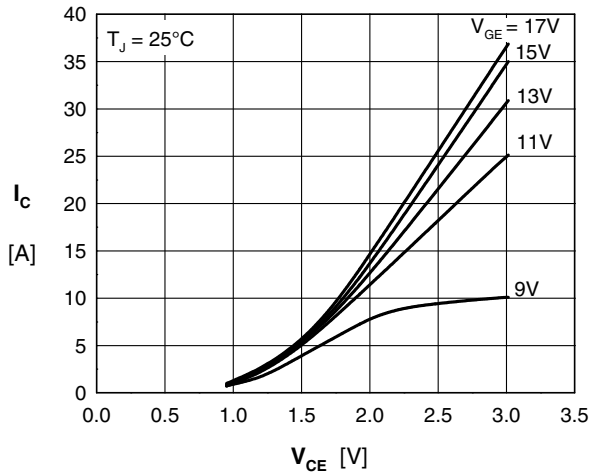


Fig. 1 Typ. output characteristics

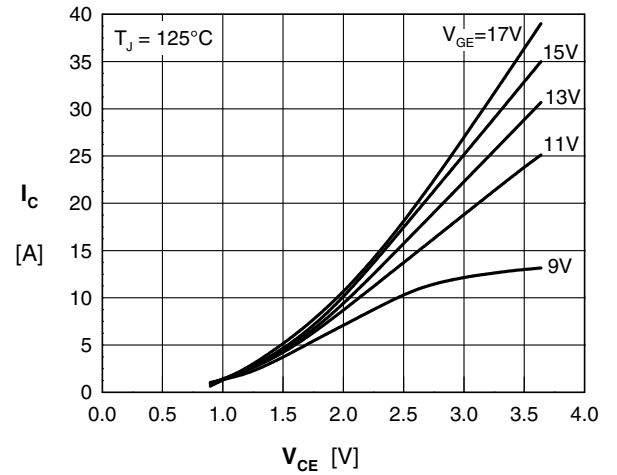


Fig. 2 Typ. output characteristics

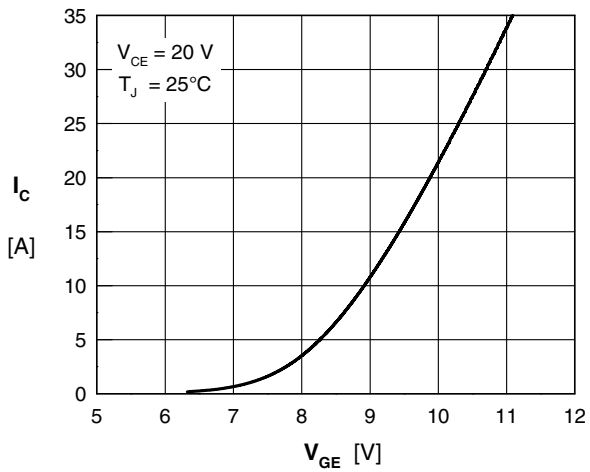


Fig. 3 Typ. transfer characteristics

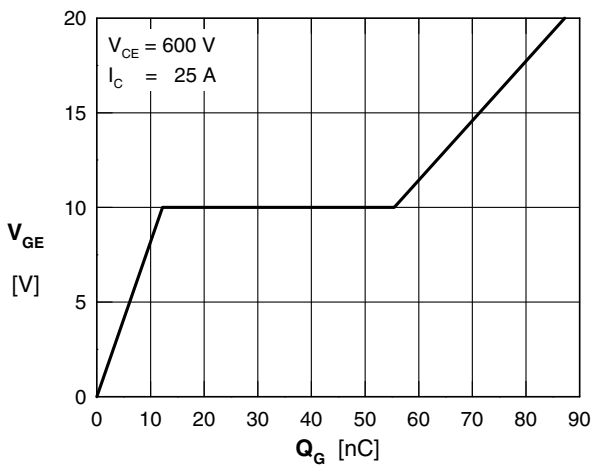


Fig. 4 Typ. turn on gate charge

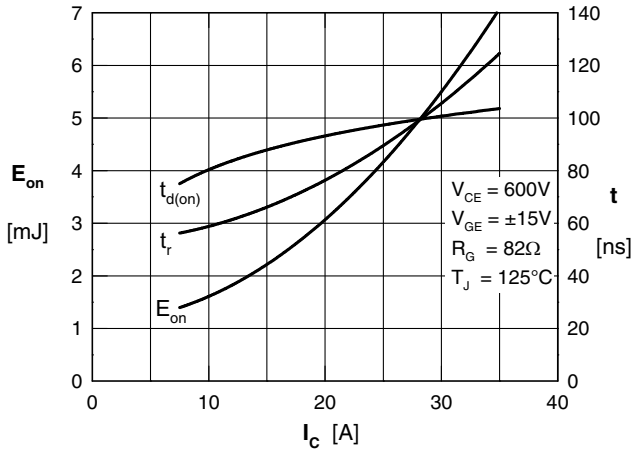


Fig. 5 Typ. turn on energy and switching times versus collector current

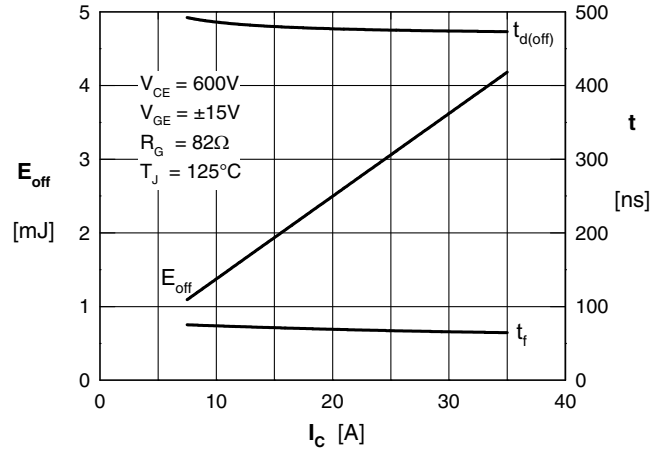


Fig. 6 Typ. turn off energy and switching times versus collector current

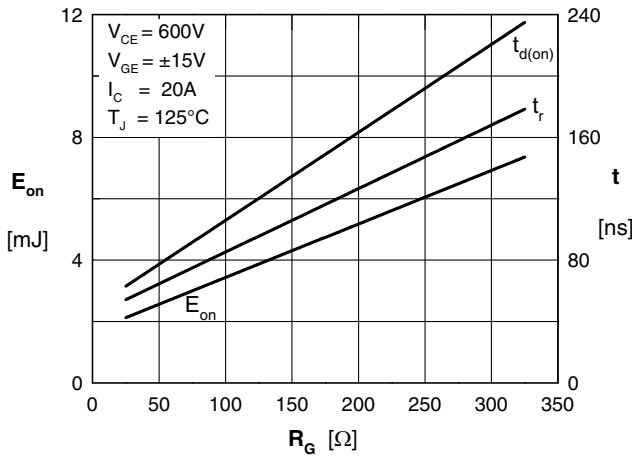


Fig. 7 Typ. turn on energy and switching times versus gate resistor

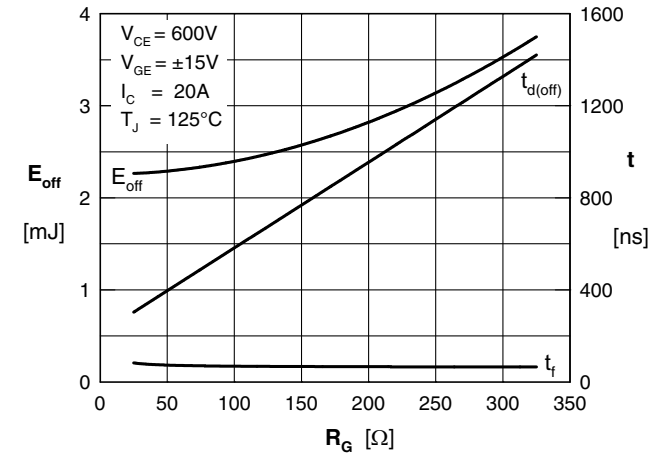


Fig.8 Typ. turn off energy and switching times versus gate resistor

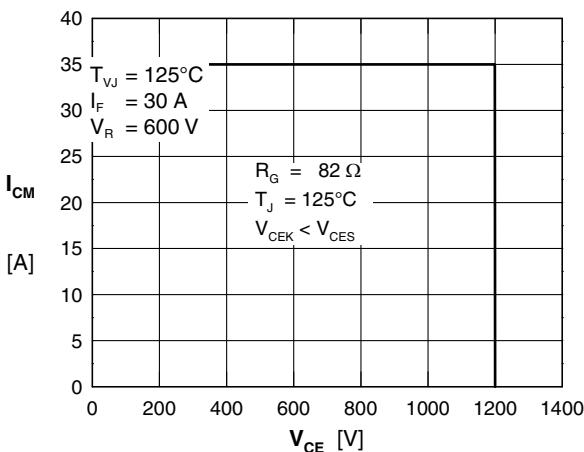


Fig. 9 Reverse biased safe operating area RBSOA

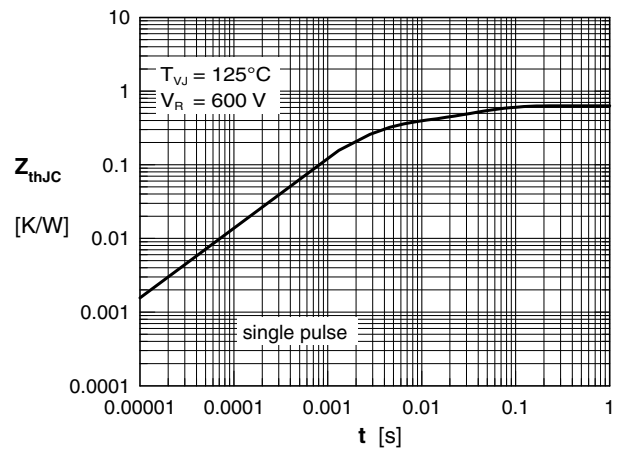


Fig. 10 Typ. transient thermal impedance