

# Insulated Gate Bi-polar Transistors

## Capsule Types

As a pioneer of Press-Pack IGBT technology, we are able to offer a range of class leading devices with voltage ratings of 1.7kV (900V DC link), 2.5kV (1.25kV DC link), 4.5kV (2.8kV DC link) and 6.5kV (3.6kV DC link). The construction of these devices is totally free from wire and solder bonds which all but eliminates the problems of mechanical fatigue associated with conventional modules. Internal stray inductance in both the gate connections and emitter connections is vastly reduced when compared to conventional modules leading to improved ruggedness and short circuit behavior, which is further enhanced by direct cooling of the emitter side of the chip.

These devices are based on a state of the art soft punch through (SPT++) process, which yields exceptional values of  $V_{CE(sat)}$  and soft switching behavior despite the high voltage ratings. The devices feature a positive temperature coefficient making them suitable for reliable parallel operation. Devices are available with or without integral anti-parallel diode; a range of complimentary High Power Sonic Diodes optimized for use with these IGBTs are available now with a new generation using improved technology in development. Please contact your representative for more information.

The press-pack IGBTs exhibit exceptional power cycling performance; typically an order of magnitude better than modules, making them highly suited to applications such as metals and traction drive systems where there are repeated cyclic power demands. Press-pack IGBTs have a stable short circuit failure mode which, as well as safety benefits, makes them an ideal choice for medium and high voltage applications where series connection is required. Stable short circuit failure mode allows for the design in of n+ redundancy without additional bypass switches and costly explosion proof enclosures. Typical examples include HVDC, FACTs, Active VAr controllers / compensators and medium voltage drives. In applications above 4MW press-pack IGBTs offer exceptional power density, far exceeding that achievable with comparable modules in multi-level / MMC based converters.

These PPIGBT's are largely backwardly compatible with standard 2.5kV and 4.5kV GTOs in many applications such as AC drives. This makes these parts a simple and economical path to upgrade or refurbish equipment that previously used GTOs, such as locomotives or medium voltage drives. They are suitable for all cooling options including direct liquid immersion. Complementary gate drives, mounting clamps and passive components available.

Part No.	$V_{CES}$	$I_C$	$I_{CM}$	$V_{CE(sat)}$ @ $I_C$	IGBT Switching			Diode Recovery			$T_{JM}$	$R_{thJK}$		Fig. No.
					Typical		$V_F$ $I_F = I_C$	Typical				IGBT	Diode	
					$E_{ON}$ J	$E_{OFF}$ J		$I_{rm}$ A	$t_{rr}$ $\mu s$	$Q_r$ $\mu C$				
➤ <b>T0600NC17A</b>	1700	600	1200	3.0	0.29	0.50	2.25	300	0.5	175	125	0.0541	0.125	W40
➤ <b>T0840NC17E</b>	1700	840	1680	3.0	0.41	0.70	N/A	N/A	N/A	N/A	125	0.0386	N/A	W40
<b>T0960VC17G</b>	1700	960	1920	3.0	0.47	0.80	2.05	540	0.6	310	125	0.0338	0.0625	W67
➤ <b>T1440VC17E</b>	1700	1440	2880	3.0	0.70	1.20	N/A	N/A	N/A	N/A	125	0.0225	N/A	W67
➤ <b>T1680TC17G</b>	1700	1680	3360	3.0	0.82	1.40	2.05	945	0.5	545	125	0.0193	0.0357	W41
➤ <b>T0140QC33G</b>	3300	140	280	3.35	0.37	0.38	3.0	100	1.9	150	125	0.108	0.1728	W109
➤ <b>T0285NC33E</b>	3300	285	570	3.4	0.73	0.75	N/A	N/A	N/A	N/A	125	0.0546	N/A	W40
➤ <b>T0425VC33G</b>	3300	425	850	3.4	1.1	1.12	3.0	305	1.7	440	125	0.0364	0.0576	W67
➤ <b>T0640VC33E</b>	3300	640	1280	3.4	1.65	1.68	N/A	N/A	N/A	N/A	125	0.0243	N/A	W67
➤ <b>T0710TC33A</b>	3300	710	1420	3.4	1.83	1.87	3.3	455	1.5	655	125	0.0218	0.0432	W41
➤ <b>T1000TC33E</b>	3300	1000	2000	3.4	2.6	2.7	N/A	N/A	N/A	N/A	125	0.0156	N/A	W41
➤ <b>T1000EC33G</b>	3300	1000	2000	3.4	2.6	2.7	3.0	470	1.7	1040	125	0.0156	0.0247	W44
➤ <b>T1500EC33E</b>	3300	1500	3000	3.4	3.9	4.05	N/A	N/A	N/A	N/A	125	0.0104	N/A	W44
➤ <b>T2000GC33G</b>	3300	2000	4000	3.4	5.2	5.4	3.0	940	2.2	2070	125	0.0078	0.0123	W45

Outlines on pages O-01...O-35



W40 Weight 430 g



W41 Weight 1.2 kg



W45 Weight 2 kg



W67 Weight 650 g



W71 Weight 1.5 kg