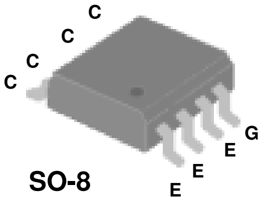
Advanced Power
Electronics Corp.

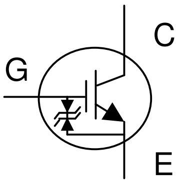
AP28G45GEM-HF-3

Insulated Gate Bipolar Power Transistor

High Input Impedance
High Peak Current Capability
Low 3.3V Gate Drive
Strobe Flash Applications
RoHS-compliant, halogen-free package



V_{CE}	450V
I_{CP}	130A



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{CE}	Collector-Emitter Voltage	450	V
V_{GE}	Gate-Emitter Voltage	± 6	V
I_{GEP}	Pulsed Gate-Emitter Voltage	± 8	V
I_{CP}	Pulsed Collector Current, at V_{GE} =3.3V	130	A
$P_D@T_C=25℃^1$	Maximum Power Dissipation	2.5	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Electrical Specifications at T_j=25℃ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I_{GES}	Gate-Emitter Leakage Current	V_{GE}=± 6V, V_{CE}=0V	-	-	10	uA
I_{CES}	Collector-Emitter Leakage Current	V_{CE}=450V, V_{GE}=0V	-	-	10	uA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	V_{GE}=3.3V, I_{CP}=130A (Pulsed)	-	3.8	6	V
$V_{GE(th)}$	Gate Threshold Voltage	$V_{CE}=V_{GE}$, I_C=250uA	-	-	1	V
Q_g	Total Gate Charge	I_C=40A V_{CE}=360V V_{GE}=4.5V	-	74	120	nC
Q_{ge}	Gate-Emitter Charge		-	8	-	nC
Q_{gc}	Gate-Collector Charge		-	34	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{CC}=200V I_C=15A R_G=10Ω V_{GE}=5V	-	20	-	ns
t_r	Rise Time		-	100	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	400	-	ns
t_f	Fall Time		-	3	-	μs
C_{ies}	Input Capacitance	V_{GE}=0V V_{CE}=25V f=1.0MHz	-	3020	4830	pF
C_{oes}	Output Capacitance		-	220	-	pF
C_{res}	Reverse Transfer Capacitance		-	50	-	pF
Rth_{JA}^1	Thermal Resistance Junction-Ambient		-	-	50	℃/W

Notes:

1.Surface mounted on 1 in^2 copper pad of FR4 board; 125℃/W when mounted on minimum copper pad.

Ordering Information

AP28G45GEM-HF-3TR : in RoHS-compliant halogen-free SO-8 shipped on tape and reel (3000 pcs/reel)

Typical Electrical Characteristics

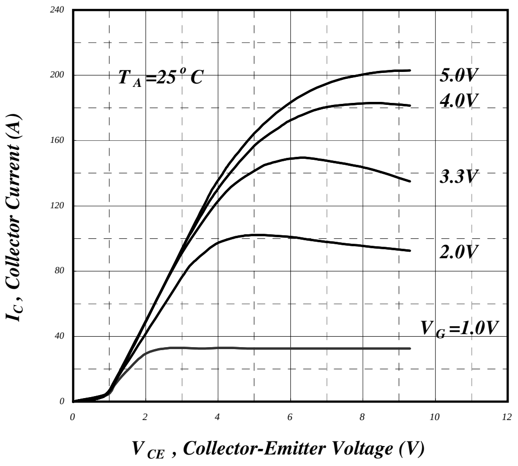


Fig 1. Typical Output Characteristics

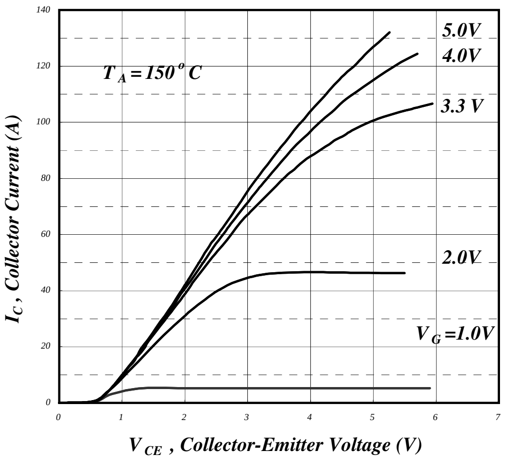


Fig 2. Typical Output Characteristics

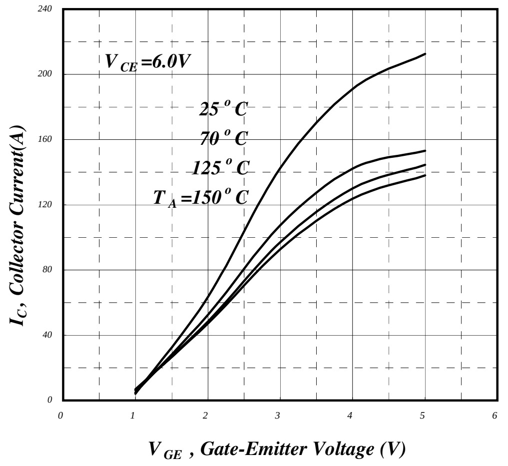


Fig 3. Collector Current vs.
Gate-Emitter Voltage

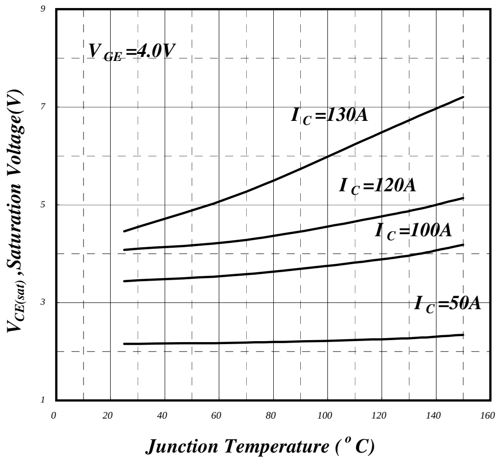


Fig 4. Collector- Emitter Saturation Voltage
vs. Junction Temperature

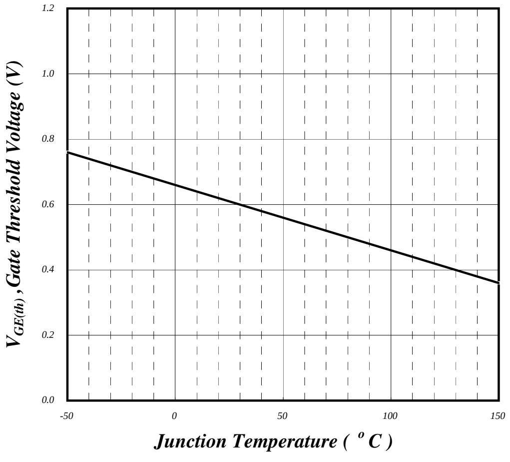


Fig 5. Gate Threshold Voltage
vs. Junction Temperature

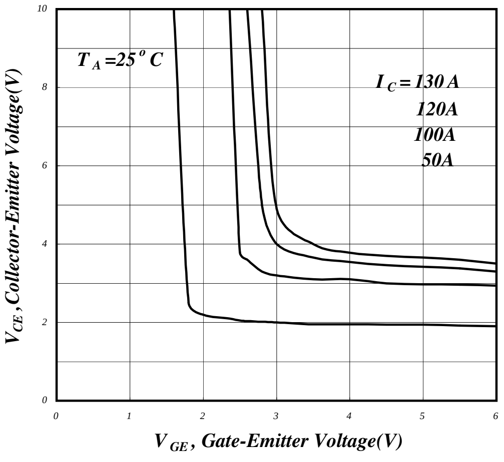


Fig 6. Collector- Emitter Voltage vs.
Gate-Emitter Voltage

Typical Electrical Characteristics (cont.)

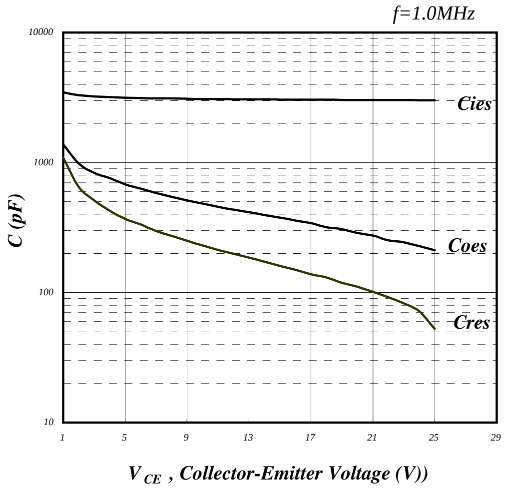


Fig 7. Typical Capacitance Characteristics

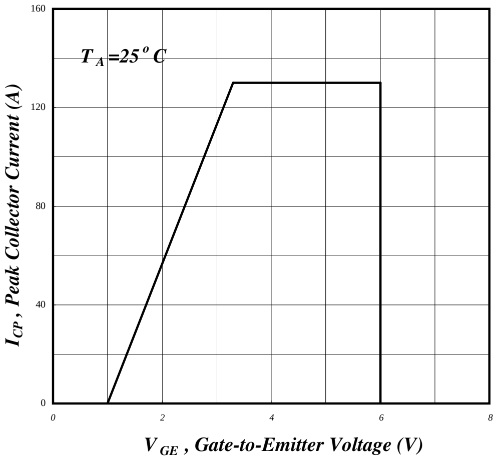


Fig 8. Maximum Pulse Collector Current

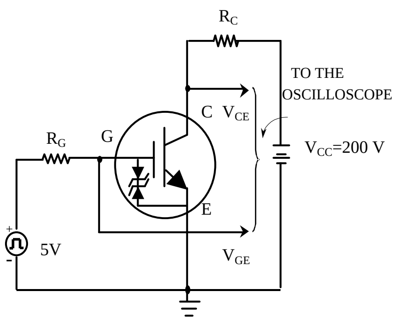


Fig 9. Switching Time Test Circuit

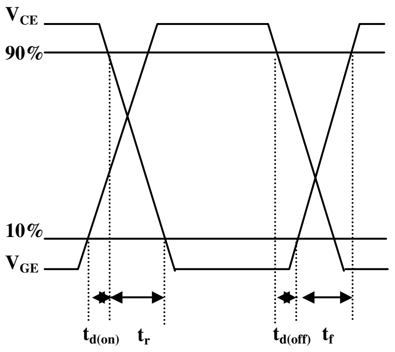


Fig 10. Switching Time Waveform

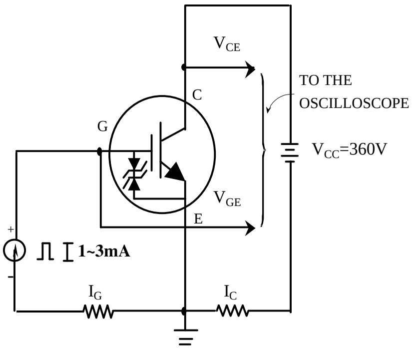


Fig 11. Gate Charge Test Circuit

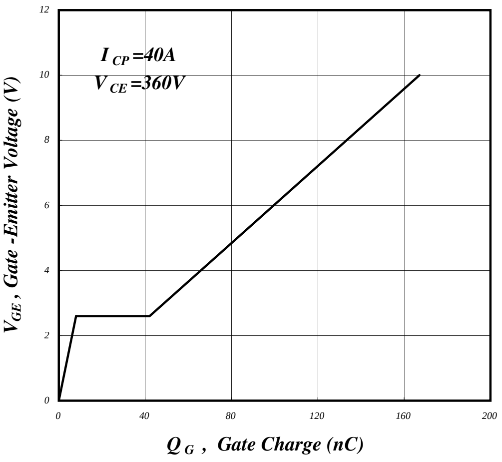
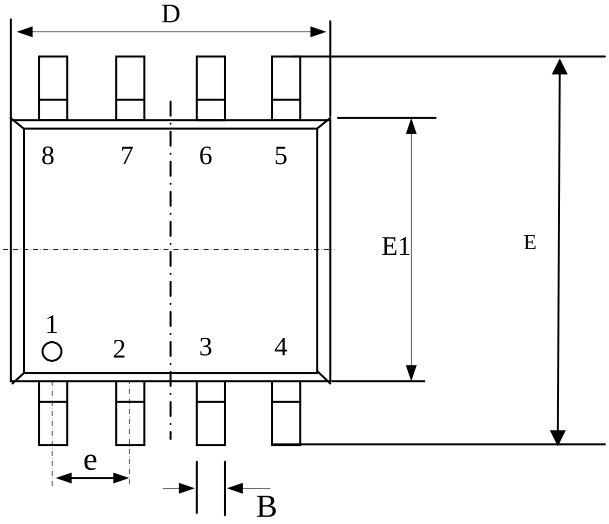
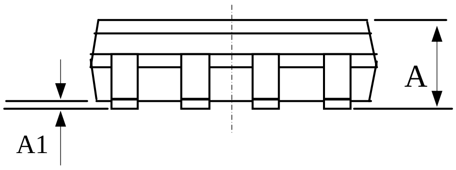


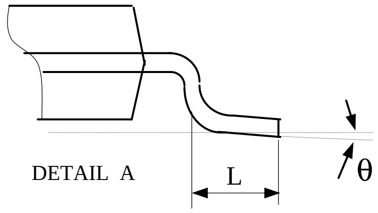
Fig 12. Gate Charge Waveform

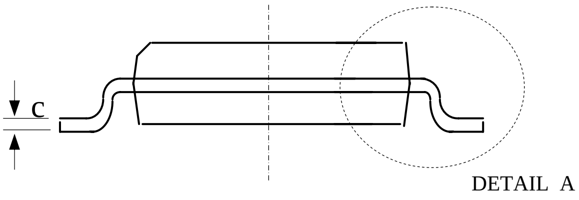
Package Dimensions: SO-8



SYMBOLS	Millimeters		
	MIN	NOM	MAX
A	1.35	1.55	1.75
A1	0.10	0.18	0.25
B	0.33	0.41	0.51
C	0.19	0.22	0.25
D	4.80	4.90	5.00
E1	3.80	3.90	4.00
E	5.80	6.15	6.50
L	0.38	0.71	1.27
θ	0	4.00	8.00
e		1.27 TYP	

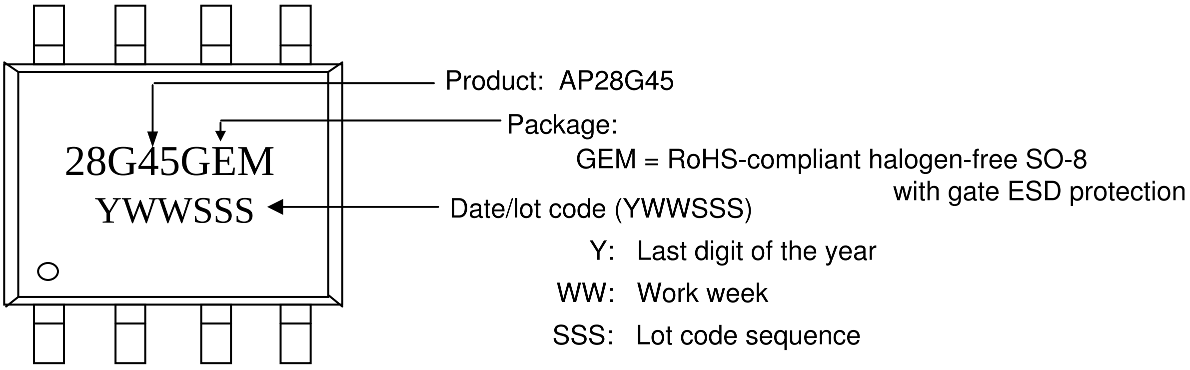






1. All dimensions are in millimeters.
2. Dimensions do not include mold protrusions.

Marking Information:



Product: AP28G45

Package:

GEM = RoHS-compliant halogen-free SO-8 with gate ESD protection

Date/lot code (YWWSSS)

Y: Last digit of the year

WW: Work week

SSS: Lot code sequence