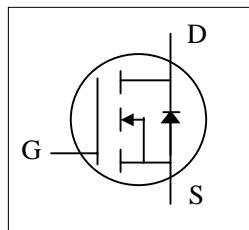




- ▼ Simple Drive Requirement
- ▼ Lower On-resistance
- ▼ Fast Switching Characteristic

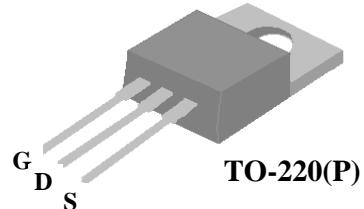
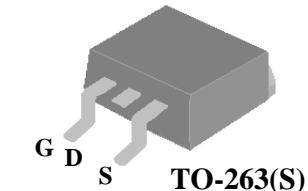


BV_{DSS}	80V
$R_{DS(ON)}$	13mΩ
I_D	75A

Description

The Advanced Power MOSFETs from APEC provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The TO-263 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters. The through-hole version (AP85T08GP) are available for low-profile applications.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	80	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	75	A
$I_D @ T_C = 100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	48	A
I_{DM}	Pulsed Drain Current ¹	260	A
$P_D @ T_C = 25^\circ\text{C}$	Total Power Dissipation	138	W
	Linear Derating Factor	1.11	W/°C
E_{AS}	Single Pulse Avalanche Energy ³	450	mJ
I_{AR}	Avalanche Current	30	A
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Value	Units
R_{thj-c}	Thermal Resistance Junction-case	Max. 0.9	°C/W
R_{thj-a}	Thermal Resistance Junction-ambient	Max. 62	°C/W



AP85T08GS/P

Electrical Characteristics@ $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{\text{GS}}=0\text{V}, I_{\text{D}}=1\text{mA}$	80	-	-	V
$R_{\text{DS(ON)}}$	Static Drain-Source On-Resistance ²	$V_{\text{GS}}=10\text{V}, I_{\text{D}}=45\text{A}$	-	-	13	$\text{m}\Omega$
$V_{\text{GS(th)}}$	Gate Threshold Voltage	$V_{\text{DS}}=V_{\text{GS}}, I_{\text{D}}=250\text{\mu A}$	1	-	3	V
g_{fs}	Forward Transconductance	$V_{\text{DS}}=10\text{V}, I_{\text{D}}=45\text{A}$	-	70	-	S
I_{DSS}	Drain-Source Leakage Current ($T_j=25^\circ\text{C}$)	$V_{\text{DS}}=80\text{V}, V_{\text{GS}}=0\text{V}$	-	-	10	\mu A
	Drain-Source Leakage Current ($T_j=150^\circ\text{C}$)	$V_{\text{DS}}=64\text{V}, V_{\text{GS}}=0\text{V}$	-	-	100	\mu A
I_{GSS}	Gate-Source Leakage	$V_{\text{GS}}= \pm 20\text{V}$	-	-	± 100	nA
Q_g	Total Gate Charge ²	$I_{\text{D}}=45\text{A}$	-	63	100	nC
Q_{gs}	Gate-Source Charge	$V_{\text{DS}}=64\text{V}$	-	23	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	$V_{\text{GS}}=4.5\text{V}$	-	38	-	nC
$t_{\text{d(on)}}$	Turn-on Delay Time ²	$V_{\text{DS}}=40\text{V}$	-	30	-	ns
t_r	Rise Time	$I_{\text{D}}=45\text{A}$	-	100	-	ns
$t_{\text{d(off)}}$	Turn-off Delay Time	$R_{\text{G}}=10\Omega, V_{\text{GS}}=10\text{V}$	-	144	-	ns
t_f	Fall Time	$R_{\text{D}}=0.89\Omega$	-	173	-	ns
C_{iss}	Input Capacitance	$V_{\text{GS}}=0\text{V}$	-	6300	10080	pF
C_{oss}	Output Capacitance	$V_{\text{DS}}=25\text{V}$	-	670	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	350	-	pF
R_g	Gate Resistance	f=1.0MHz	-	1.1	1.7	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage ²	$I_{\text{S}}=45\text{A}, V_{\text{GS}}=0\text{V}$	-	-	1.3	V
t_{rr}	Reverse Recovery Time ²	$I_{\text{S}}=20\text{A}, V_{\text{GS}}=0\text{V}$	-	47	-	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=100\text{A}/\mu\text{s}$	-	86	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Starting $T_j=25^\circ\text{C}$, $V_{\text{DD}}=30\text{V}$, $L=1\text{mH}$, $R_{\text{G}}=25\Omega$, $I_{\text{AS}}=30\text{A}$.

THIS PRODUCT IS AN ELECTROSTATIC SENSITIVE, PLEASE HANDLE WITH CAUTION.

THIS PRODUCT HAS BEEN QUALIFIED FOR CONSUMER MARKET. APPLICATIONS OR USES AS CRITERIAL COMPONENT IN LIFE SUPPORT DEVICE OR SYSTEM ARE NOT AUTHORIZED.

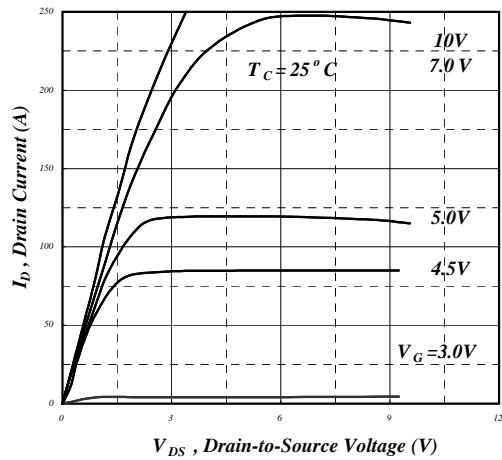


Fig 1. Typical Output Characteristics

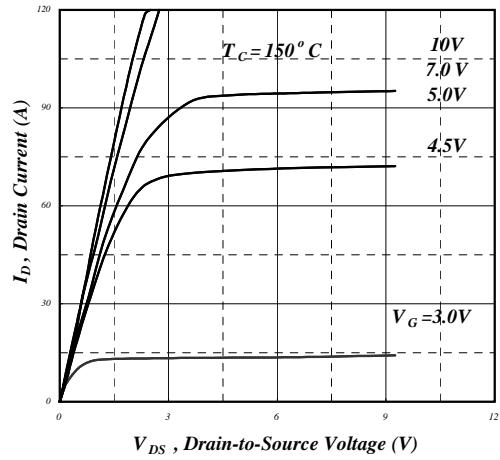


Fig 2. Typical Output Characteristics

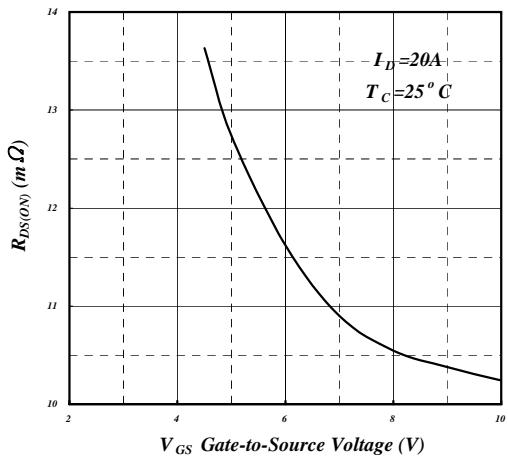


Fig 3. On-Resistance v.s. Gate Voltage

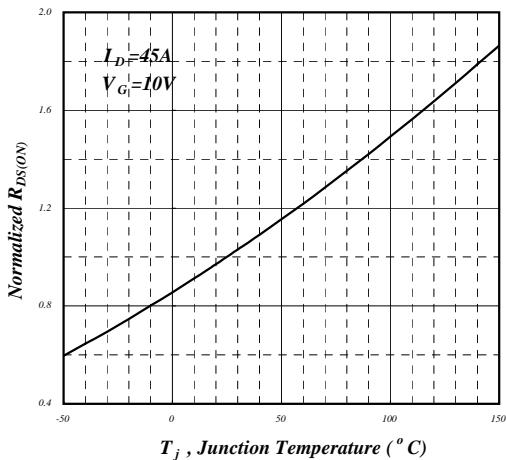


Fig 4. Normalized On-Resistance v.s. Junction Temperature

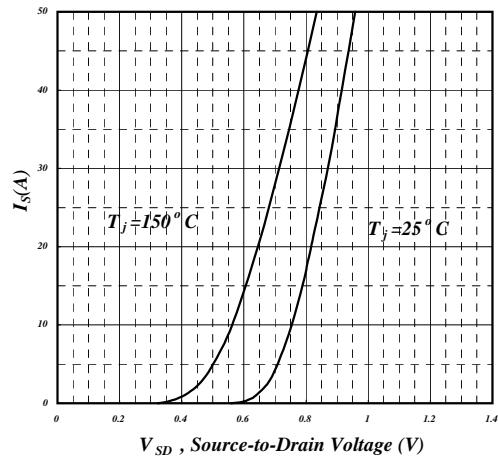


Fig 5. Forward Characteristic of Reverse Diode

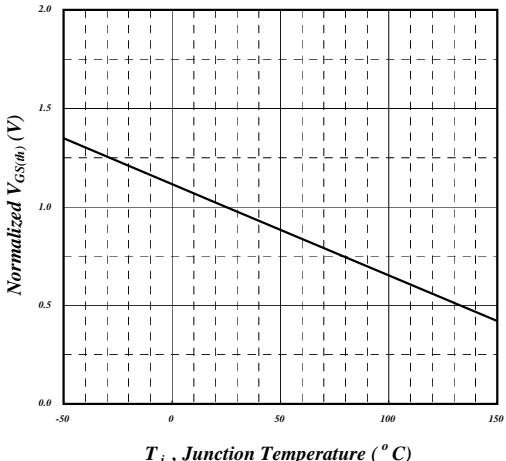
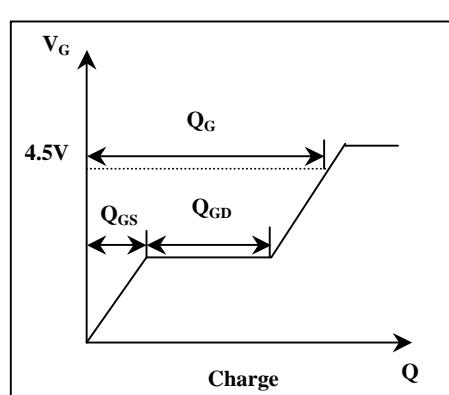
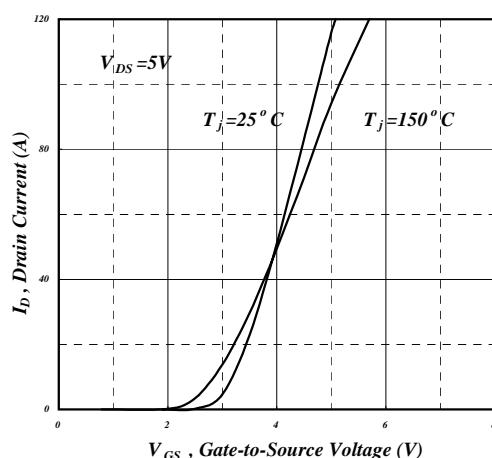
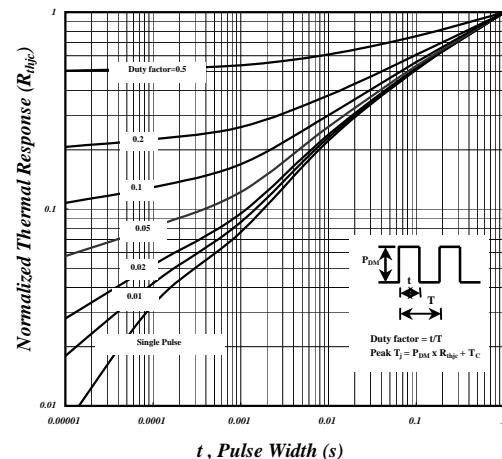
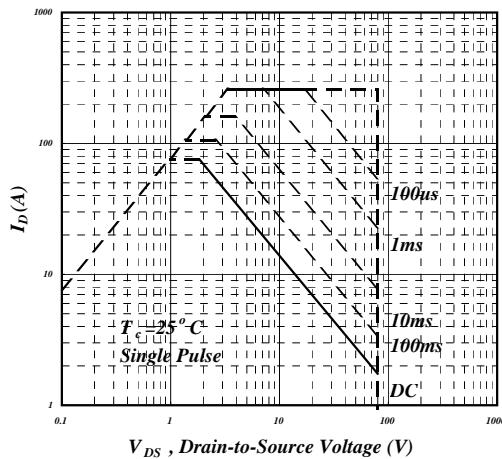
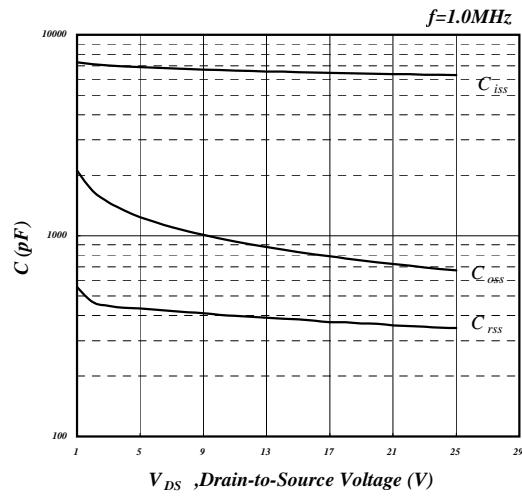
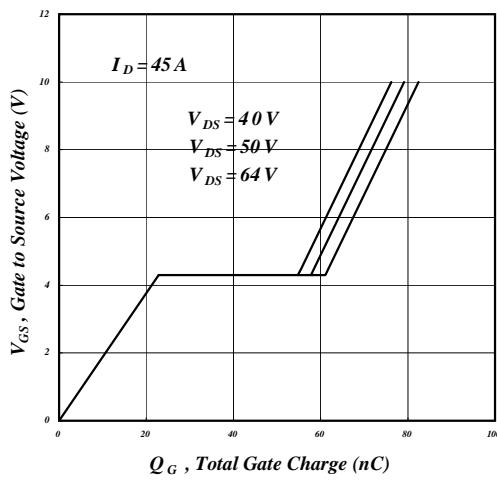


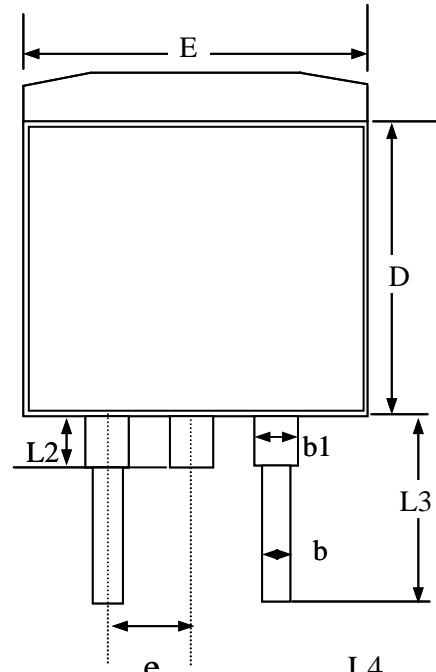
Fig 6. Gate Threshold Voltage v.s. Junction Temperature



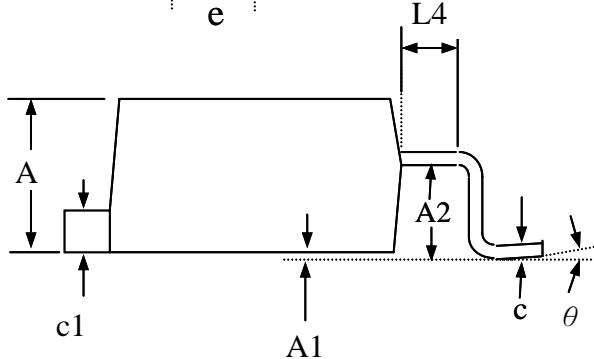


ADVANCED POWER ELECTRONICS CORP.

Package Outline : TO-263



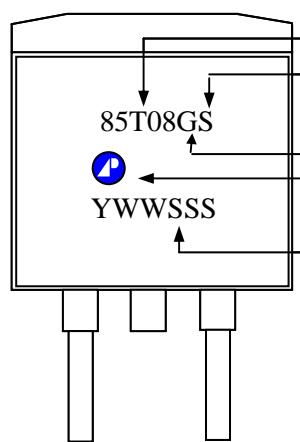
SYMBOLS	Millimeters		
	MIN	NOM	MAX
A	4.25	4.75	5.20
A1	0.00	0.15	0.30
A2	2.20	2.45	2.70
b	0.70	0.90	1.10
b1	1.07	1.27	1.47
c	0.30	0.45	0.60
c1	1.15	1.30	1.45
D	8.30	8.90	9.40
E	9.70	10.10	10.50
e	2.04	2.54	3.04
L2	-----	1.50	-----
L3	4.50	4.90	5.30
L4	-----	1.50	-----



1. All Dimensions Are in Millimeters.

2. Dimension Does Not Include Mold Protrusions.

Part Marking Information & Packing : TO-263



Part Number

Package Code

meet Rohs requirement

85T08GS
LOGO
YWWSSSS

Date Code (YWWSSSS)

Y : Last Digit Of The Year

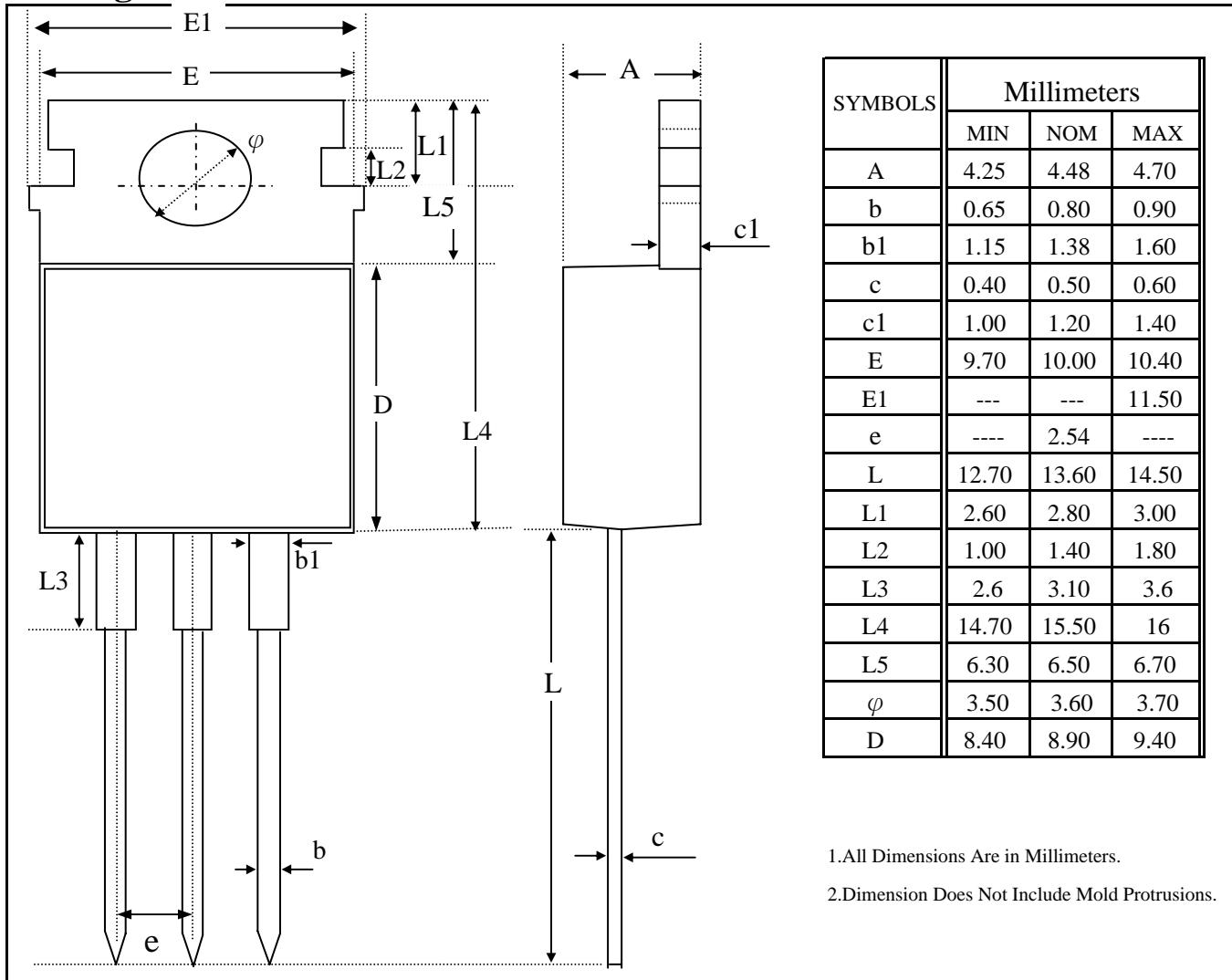
WW : Week

SSS : Sequence



ADVANCED POWER ELECTRONICS CORP.

Package Outline : TO-220



Part Marking Information & Packing : TO-220

